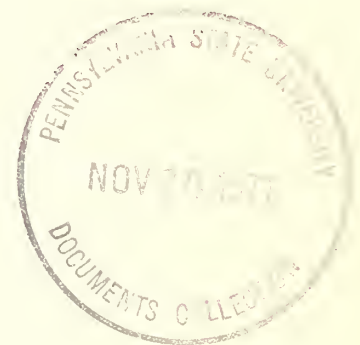


CH 21-26

Feasibility and Design of a

Prototype Multi-level Industrial Building

in Cleveland, Ohio



U.S. DEPARTMENT OF COMMERCE/ECONOMIC DEVELOPMENT ADMINISTRATION

Feasibility and Design of
A PROTOTYPE MULTI-LEVEL
INDUSTRIAL BUILDING
in Cleveland, Ohio

prepared for the City of Cleveland
by William A. Gould and Associates

August 1970

This technical assistance study was accomplished by professional consultants under contract with the Economic Development Administration. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the Contractor and do not necessarily reflect the views of the Economic Development Administration.

TABLE OF CONTENTS

INTRODUCTION AND CONCLUSION	p. 1
CHAPTER 1 PRELIMINARY RESEARCH AND PROGRAMMING	
A. Objectives	p. 1-1
B. Study Method and Findings	p. 1-2
1. Evaluation of Employment Factors	p. 1-3
2. Evaluation of Community Support	p. 1-9
3. Selection of Industries	p. 1-11
4. Preliminary Building Program	p. 1-22
5. Selection of Site	p. 1-26
6. Evaluation of Developer Potential	p. 1-55
C. Conclusions	p. 1-58
CHAPTER 2 DESIGN DEVELOPMENT PROTOTYPE BUILDING ONE - FOOD INDUSTRY	
A. Objectives	p. 2-1
B. Study Methods and Findings	p. 2-2
1. Identification of Tenants	p. 2-3
2. Site Analysis and Plan	p. 2-4
3. Soils Analysis	p. 2-12
4. Structural System Analysis	p. 2-12
5. Mechanical and Electrical Systems Analysis	p. 2-13
6. Material Handling System Analysis	p. 2-13
7. Building Design	p. 2-14
8. Construction Cost Analysis	p. 2-32
C. Conclusions	p. 2-34
CHAPTER 3 PROTOTYPE BUILDING ONE PRELIMINARY CONCLUSIONS AND PROGRAM REVISIONS	
A. Objectives	p. 3-1
B. Study Methods and Findings	p. 3-2
1. Financial Analysis	p. 3-2
2. Development Considerations	p. 3-6
3. Management Considerations	p. 3-7
4. Evaluation of Food Industry as Tenants	p. 3-8
5. Evaluation of Building Program and Design	p. 3-10
C. Conclusions	p. 3-13

TABLE OF CONTENTS (Cont'd.)

CHAPTER 4 PROTOTYPE BUILDING TWO - FOOD INDUSTRY

A.	Objectives	p. 4-1
B.	Study Methods and Findings	p. 4-2
1.	Definition of Building Program	p. 4-2
2.	Building Design	p. 4-3
3.	Financial Analysis	p. 4-14
4.	Development Considerations	p. 4-17
C.	Conclusions	p. 4-19

CHAPTER 5 PROTOTYPE BUILDING THREE

A.	Objectives	p. 5-1
B.	Study Methods and Findings	p. 5-3
1.	Site Analysis	p. 5-3
2.	Building Program	p. 5-4
3.	Building Design	p. 5-5
4.	Financial Analysis	p. 5-19
5.	Development Considerations	p. 5-22
C.	Conclusions	p. 5-28

APPENDIX 1 PRELIMINARY RESEARCH AND PROGRAMMING

Section A	Characteristics of Selected Neighborhoods	p. A1-1
Section B	Community Support	p. A1-7
Section C	Selection of Industries	p. A1-12
Section D	Preliminary Building Program	p. A1-29
Section E	Selection of Building Site	p. A1-39

APPENDIX 2 PROTOTYPE BUILDING ONE - DESIGN DEVELOPMENT FOOD INDUSTRY

Section A	Soil Analysis	p. A2-1
Section B	Structural Analysis	p. A2-3
Section C	Mechanical and Electrical Systems Analysis	p. A2-6
Section D	Material Handling Analysis	p. A2-8
Section E	Building Program and Design	p. A2-15

APPENDIX 3 PROTOTYPE BUILDING ONE - PRELIMINARY CONCLUSIONS AND PROGRAM REVISION

Section A	Financial Analysis	p. A3-1
Section B	Development Considerations	p. A3-13
Section C	Market Survey	p. A3-15

TABLE OF CONTENTS (Cont'd.)

APPENDIX 4 PROTOTYPE BUILDING TWO

Section A	Building Program and Design	p. A4-1
Section B	Financial Analysis	p. A4-11
Section C	Development Considerations	p. A4-29

APPENDIX 5 PROTOTYPE BUILDING THREE

Section A	Building Program and Design	p. A5-1
Section B	Financial Analysis	p. A5-23

APPENDIX 6 BIBLIOGRAPHY

p. A6-1

INTRODUCTION AND CONCLUSIONS

- A. STUDY BACKGROUND
- B. STUDY OBJECTIVES
- C. SCOPE OF WORK
- D. STUDY CONCLUSIONS
- E. ACKNOWLEDGEMENTS

In April, 1967, this project was undertaken to study the planning, architectural, engineering and economic feasibility of constructing a multi-level industrial building on an urban site in Cleveland, Ohio. It was a direct outgrowth of an earlier study entitled An Evaluation of Vacant Industrial Land and Buildings and Their Potential, which was completed by this firm for the City of Cleveland as a Technical Assistance Project sponsored by the Area Redevelopment Administration. In order to fully understand the objectives of the present study, it is necessary to summarize the major conclusions of the 1965 study.

STUDY BACKGROUND

In the 1965 study, the characteristics of vacant industrial buildings in Cleveland were defined in order to determine if this City is in a favorable position to retain and house industries that would be displaced by urban renewal, highways and other public improvement programs. The major conclusions of that report can be summarized as follows:

- Cleveland, in 1965, had a growing number of industrial buildings tending toward functional obsolescence because their design restricted industrial efficiency and flexibility. Some of these functionally obsolete buildings were vacant, but many were still in use, which suggested that the problems would become more critical in the future as firms find that they need more efficient facilities.
- The real estate market for industrial firms which can use these aging structures is limited to smaller, locally oriented firms, new operations needing "incubator" space, or large operations which require a central city location and find these functionally obsolete buildings as their only choice. As smaller firms outgrow this type of space and larger firms find they can no longer operate in such facilities, they will find that their alternatives are limited to a predominance of poor quality space within existing industrial buildings and a limited supply of good vacant industrial land for development, often at prohibitively high costs.
 - a. There is evidence that the cost of renovating older facilities by adding conveyors, ramps, elevators, etc. cannot generally be justified on the basis of building investment alone, since the cost of renovation is seldom reflected in a comparably higher building value.

- b. It is not logical to expect larger firms to move from one functionally obsolete building to another since this condition is what has caused them to move initially.
- c. There is little opportunity to build new industrial facilities in Cleveland since this is a built up city with little vacant industrial land left for such development. What land is available is often prohibitively high in cost.

These factors will adversely affect the industrial climate of Cleveland, since they raise doubts as to whether the industrial firms presently occupying older facilities will be able to remain headquartered in the City of Cleveland when faced with the need to move. This, in turn, suggests that the residents of the central city will be adversely affected by a loss of job opportunities when and if such firms move out of their present location.

- It was concluded that high density urban industrial needs differ from those of suburban areas. While a sprawling, one story industrial building is appropriate for low density suburban use, the central city is at a disadvantage when it tries to encourage the development of this type of building because there is less urban land available and it generally costs more than suburban industrial land. The 1965 report states that "Solutions to urban industrial problems must be met with honest evaluations regarding land coverage, density and servicing --- not in terms commonly associated with suburban developments".

Within the context of the 1965 study, a schematic design for a large multi-level industrial building was developed to provide a framework for the evaluation of a maximum number of design variables and costs. The analysis indicated that the multi-level approach could offer a high density solution to the problem of using limited amounts of urban industrial land.

STUDY OBJECTIVES

The multi-level industrial building concept, as identified in the 1965 report, thus offered an avenue for further study as a high density method for using urban industrial land. Using the conclusions of the 1965 report as a starting point, the broad objectives of this present study have been defined as follows:

- To develop high density industrial facilities which would permit intensive use of high value urban industrial land.
- To evaluate the planning, architectural and economic feasibility of these solutions in order to identify a specific project which can be executed.
 - a. To identify potential sites for the development of a multi-level industrial building.
 - b. To develop planning and building programming criteria.
 - c. To make a preliminary survey of the potential support for execution of this project among financial, industrial, business and government leaders of the community.
 - d. To study construction and development costs and tenant rental costs as they presently exist.
 - e. To examine the technical problems affecting location, design and use of the building.
- To determine the extent to which a multi-level industrial building would be a significant factor in retaining employment opportunities for inner city residents.
- To investigate the influence of a multi-level industrial building in retaining local industries which must relocate or improve their present facilities.
 - a. To determine the advantages of being located near an available labor supply within the inner city.
 - b. To ascertain the types of industries which could function within the proposed building.
 - c. To select industries representative of those now located in Cleveland which have a potential need for new facilities.

These broad objectives have been further refined to form the framework for conducting this study. These specific objectives, which have been defined for each phase of the project, are set forth at the beginning of each chapter in this report. A research approach has been used, with each new stage of work proceeding on the basis of knowledge gained from the previous stage and building up a new source of data. This research approach can be defined as follows:

- Definition of objectives sought to be accomplished.
- Definition of the method of approach and execution of the work.
- Evaluation of the findings and formulations of conclusions relating to each objective.

Each phase of the work program has been executed using this step-by-step analytical approach with the findings and conclusions of each stage forming the basis for the objectives of the next phase of work.

SCOPE OF WORK

The scope of work is defined in Contract No. 7-35284 between the City of Cleveland and the Economic Development Administration of the United States Department of Commerce. Work began initially under the original contract in March, 1967 and involved these major phases:

- Preliminary Research and Programming: This stage involved the evaluation and selection of industries as potential tenants for this prototype building study; the evaluation and selection of possible sites for the development of the building; and determination of general planning and building program data (see Chapters 1 and 2).
- Prototype Building One: The next stage involved the design of a 13-level prototype building for the food industry, a market test of this building and a detailed pro forma financial analysis (see Chapters 3 and 4).
- Prototype Building Two: Based on the findings of the market test, the food industry facility design was to be modified to meet the needs of the current tenant market. The market test results indicated a tenant market and requirements which were substantially different from those programmed for Prototype One. Therefore, the decision was made to redesign the prototype to meet these requirements (see Chapter 4). Presentations were made to private developers to test the development feasibility of Prototype Two.
- Prototype Building Three: With the completion of the original work program, several major conclusions were defined relating to the project's financial feasibility and tenant markets. The development costs and cash flow requirements of Prototype Two resulted in a rental rate which would be in excess of the current market for industrial space. A potential tenant market was defined within the food industry, but its size and financial

resources appeared limited. It became apparent that some form of federal and local government financial assistance would be necessary to achieve rental rates competitive with the current rental market. Correlative issues arose as to the form and amount of assistance, how it should be used, and whether this would be justified for the use of a limited segment of the food industry. Discussions with developers, and other interested parties explored the possibilities of alternative tenants for the building and of a multi-industry facility. Two specific possibilities which were defined were a food cold storage facility and space for newly formed Negro-owned businesses related to the automotive industry. Since these factors were fundamental to the ultimate conclusions of this study, the Economic Development Administration authorized an amendment to the contract for building modification studies. The resultant design and feasibility analysis of Prototype Three reflects the interplay of these factors and their resolution (see Chapter 5).

STUDY CONCLUSIONS

Through a process of developing and evaluating three different multi-level building designs, it has been possible to define the constraints for actual development of a multi-level industrial building on an urban site. These have been evaluated under conditions prevalent in Cleveland, Ohio at the time this study was conducted (1967 to 1969). It should be recognized that the conditions are defined as they existed in Cleveland, and they may vary from one city to another and from one time to another.

Since a multi-level industrial development is inherently more expensive than single level construction, its use would be limited to the following situations.

- When the demand for industrial space in the Region is adequate to support the higher development costs of a multi-level industrial building within the framework of private or quasi-public enterprise; or
 - When innovative structural, material handling and building service systems are advanced to the point where they can effectively be used in a multi-level building at a cost competitive to single level building; or
 - When either local or federal governments must subsidize or develop the project as a means of achieving a benefit for the public, such as retention of employment opportunities, removal of slum and blight to revitalize an industrial area, or maintaining the tax base.
1. The study process has identified factors which make multi-level construction inherently more costly than single level:
 - The stacking of industrial space in a vertical structure necessitates the construction of floors with heavy load bearing capacity.
 - Services, such as truck docking, building stairways and automobile parking, must be provided on structure.
 - Building systems are more complex because of the need to run horizontally and vertically.
 - Vertical material handling must be provided in addition to horizontal movement.

- Fireproofing, sprinklers, emergency stairs and exits must be provided to comply with safety and code standards.

All of these factors contribute to the higher cost of multi-level construction and result in a higher construction cost per square foot, a smaller percentage of rentable space in relation to gross constructed space and a higher rental rate for the tenant.

2. From an architectural design and engineering standpoint, it is possible to design multi-level industrial space which meets the functional requirements of a range of tenants engaged in light industrial processing, warehouse and distribution activities. Industrial space can be designed to accomplish this by incorporating the following features:

- Broad expanses of floor area which can be subdivided to meet the needs of various size tenants.
- Base structural, mechanical and electrical systems flexible enough to accommodate the requirements of various industrial operations.
- Basic shell space in which the tenant can develop leasehold improvements to meet his operational needs.

The characteristics of industrial operations best suited for multi-level tenancy are:

- Minimum to moderate amount of material handling, preferably of low bulk goods.
- Light manufacturing with high value added.
- Moderate truck delivery requirements so that dock use can be scheduled.

3. The development of a multi-level industrial building is not economically feasible in Cleveland under existing real estate market conditions, since the space cannot be rented at a rate which is competitive with the current market. Analysis of three building designs shows that the rental rate is not competitive (a) even when the most favorable financing package for private developers is used or (b) when a combination of direct federal grants and low interest loans with only 10% private equity is made available.

From industry's point of view, there is no advantage to multi-level construction. While certain industries are adaptable to multi-level tenancy, they seem to prefer single level facilities. There appear to be few industrial operations which require a multi-level building because of the nature of their processes. Under the present conditions in Cleveland, the only direct benefits of multi-level industrial construction would accrue to the City in the form of the higher tax return from a given piece of land and the potential for higher density use of limited amounts of land. In terms of unemployment and the move-out of industry, it is recognized that the construction of one multi-level facility will not, by itself, reverse existing trends. It would, at best, be a defensive move, retaining firms which require a central city location, or offering space at a low enough rental rate to attract tenants despite environmental deficiencies.

4. This study has identified certain variable economic conditions which act to directly affect feasibility. These are:
- Land Cost and Availability: The land cost did not form a significant percentage of the total project cost. So long as there is enough vacant industrial land in desirable locations in suburbs to accommodate single level industrial structures, there will be no market for new multi-level space. As the price of land goes up and it becomes scarce, multi-level construction may become a more economical alternative.
 - Construction Costs: This factor is constant as between Cleveland and its suburbs. In multi-level facilities, construction costs form the largest single factor in the project cost because of the need to provide space and services on structure and the complex utility requirements. With the existing relationship between land cost and construction costs, it is more economical for the owner to build single level facilities on large acreage of land so that the total project cost is lower.
 - Rental Rate: Industrial space in Cleveland currently is available at 65¢ to \$1.00 per square foot in older buildings, with factors such as surrounding environment, age, condition, location and building services determining the rental range. New suburban industrial space is available for \$1.25 to \$1.75 per square foot, generally on a gross rental basis with the tenant paying his own operating and maintenance costs. Therefore, an acceptable rental rate for new multi-level space would have to be no higher than the upper limit of the current suburban market.

- Market for New Industrial Space: A need for new space was identified in the 1965 report, A Study of Vacant Industrial Land and Buildings and Their Potential which was part of the basis for this present study. Presumably, this need still exists and has probably become more acute as buildings have become older and more obsolete, and as industrial firms expand their operations. This study did not include an in-depth market test to determine the nature and extent of the market for new industrial space. However, evidence of such a need was seen in the machinery, food, fabricated metals and printing industries, especially among small and medium size firms. It appears that firms which operate on a low margin of profit tend to gravitate toward central city locations where the rental rates are lower because the space is older.

As is shown in this study, the combination of land cost, construction cost, rental rate and market conditions as they exist in Cleveland create a situation which is not conducive to construction of new multi-level industrial buildings. It is recognized that these conditions do change from one time to another for a particular city. The existence of privately built multi-level facilities in New York City and in European cities illustrates that such a development is economically feasible under certain conditions. A test of these factors should be made in several cities for one or more of these three designs to determine the conditions under which multi-level construction is economically sound.

5. Certain trends of the food industry have been identified which appear to be characteristic of other industries.
 - Firms which serve a regional market have moved to suburban locations. Free-ways have given the suburbs quick access to the central city as well as outlying regional markets. Firms which locate in suburbs remain part of the Greater Cleveland area and economy.
 - All recent construction has been of single level facilities, because of land availability, the lower construction costs, and ease of arranging production flow.
 - A small number of firms continue to require a central city location. Some of these operate at minimal or low levels of profit and use poor quality, low cost space. They have a need for new and better space, but many cannot absorb a higher rental rate within their existing financial structure.

- Deterioration of the surrounding environment detracts from a site which otherwise has attractive locational advantages. Suburban locations have a more attractive environment than the central city.

To the extent that these factors are characteristic of other industries, they explain the reasons for the industry's moving out of Cleveland, and their preference for single level space.

RECOMMENDATIONS

While this study has been oriented toward the design and economic feasibility of a multi-level facility, consideration has also been given to the effect of such a project on socio-economic problems of the City. The problems which originally motivated the undertaking of this study remain as conditions which the City government must combat. To summarize briefly, these have been identified as:

- Industries are moving away from the central city.
- Central city residents are losing employment opportunities.
- Central city population is declining.
- The City is essentially built up with existing old buildings and little vacant industrial land remains.

As a result of these factors, the City is not receiving the income it needs to support and expand vital services, school programs and redevelopment projects for its citizens.

Because of the scope of these problems, it is recommended that the City undertake forward moving industrial redevelopment program, which would accomplish the following specific goals:

- To maintain and increase the City's tax base.
- To maintain and increase employment opportunities for residents.
- To improve the overall environment of central city neighborhoods.
- To maintain and increase the City's industrial base of small and medium size firms.

- To provide incubator space for new Negro-owned businesses.
- To sustain certain marginal businesses because of the service they perform.
- To attract new businesses to the central city.

It is apparent from the findings of this report and the scope of the problems facing Cleveland that the development and implementation of such a plan will involve a commitment of large amounts of time and money by the City and the federal government.

It is recommended that this redevelopment program include the following elements:

- General industrial land use plan aimed at giving the City the most efficient use of industrial land by providing for both single level and multi-level buildings.
- A plan for assembly and staged replacement of obsolete industrial facilities and relocation of firms operating in them.
- Provision of off-site improvements, truck holding areas, utilities, automobile parking facilities, and other amenities needed to attract industry, as recommended in Prototype Three.
- Provision of police and fire protection and adequate City services.

If construction of a publicly owned multi-level industrial building becomes desirable as a defensive measure within this redevelopment effort, the recommended design scheme is Prototype Three (see Chapter 5). The Prototype Three design concept meets the criteria necessary for a publicly owned facility by providing services to its tenants as well as the surrounding area. The financing package permits participation by City and federal governments as well as private interests.

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CHAPTER 1

PRELIMINARY RESEARCH AND PROGRAMMING

A. OBJECTIVES

B. STUDY METHODS AND FINDINGS

1. EVALUATION OF EMPLOYMENT FACTORS
2. EVALUATION OF COMMUNITY SUPPORT
3. SELECTION OF INDUSTRIES
4. PRELIMINARY BUILDING PROGRAM
5. SELECTION OF SITE
6. EVALUATION OF DEVELOPER POTENTIAL

C. CONCLUSIONS

The initial step in the work program was to make a preliminary evaluation of the feasibility of a multi-level industrial building in order to determine whether the detailed industrial design studies and financial analyses should be undertaken. This first phase involved a general examination of the economic and environmental factors affecting a decision to build a multi-level industrial building in Cleveland. The specific objectives were:

1. To make a preliminary evaluation of the direct and indirect impact of the proposed project on employment and on Cleveland's industrial base.
2. To make a preliminary evaluation of the attitudes and interests of those sectors of the community from which support for the project may be required.
3. To determine the representative industries in Cleveland which could utilize a multi-level industrial building as tenants.
4. To develop preliminary program and planning criteria for a multi-level, multi-tenant building.
5. To identify potential sites for the development of the proposed building.
6. To evaluate the development potential of the proposed building.

The methods of approach used during this initial phase involved research with written source material, personal interviews and field survey of existing condition. The sources of data as related to each objective can be summarized as follows:

1. Written statistical source material provided the data on employment trends for the City of Cleveland and its poverty areas or selected neighborhoods. This provided an overview of employment trends, especially in the manufacturing industries.
2. Personal interviews were held with representatives of the business, industrial and government sectors of the community in order to assess their opinion of this project and Cleveland's current industrial situation.
3. In order to select a tenant-subject for this study, an investigation of Cleveland's industries was made through research into written material, personal interviews and field trips. The purpose was to determine the importance of the particular industry to Cleveland, its locational and building requirements, and whether a need for new space exists within the industry.
4. Program data was developed from written source material, from the personal interviews with representatives of industry and field trips to local companies. The purpose was to establish the building requirements for the industries studied, to determine if these could be met in a multi-level building and to establish criteria for later design studies.
5. Site selection involved a field survey of Cleveland's industrially zoned areas and data collection from the office of the Cuyahoga County Auditor. This data was mapped for detailed analysis to evaluate sites for possible use in this study. Building concept studies were conducted to test the application of the building program to specific sites.
6. The alternative possibilities for development were set out by our economic consultant. Personal interviews were held with developers to ascertain their reaction to this project and to Cleveland's industrial situation.

EVALUATION OF EMPLOYMENT FACTORS

Findings Related to Objective 1

As stated in the Introduction, one purpose of this entire study is to seek methods to maintain Cleveland's industrial base and thereby retain employment opportunities for residents of the City. Within the limitations of time and budget of this study, we have attempted to evaluate the impact of a new multi-level industrial building on employment. This survey has been based on research of existing statistical data from federal and state sources.

Within the context of this survey, certain limitations in available data have been discovered relative to the capabilities, status, and in-and-out migration trends of the unemployed and under-employed. In addition to the general employment trends of Cleveland, the City's selected neighborhoods are of special interest. The selected neighborhoods are the poverty areas of Cleveland as defined by the Bureau of Census for the Office of Economic Opportunity in the Special Census of Cleveland, Ohio, April 1965. These areas represent a prime source of labor, since there is a large number of unemployed residents. Since most urban renewal and economic development efforts are being directed toward these areas, coordination with these projects is desirable.

RECENT EMPLOYMENT TRENDS

Industrial employment trends in Cleveland point toward declining central city density both in population and industrial use. These trends have been accompanied by rising unemployment rates in the urban core.

Exhibit E-1 shows a comparison of 1960 to 1965, in absolute numbers, of employment and population. It is significant that the per cent of decrease in manufacturing employment is higher than the per cent of change in all other categories (except unemployment), for the Cleveland area. The same is true for the selected neighborhoods. This indicates that, in addition to population shifts, factors such as automation, technological changes in production process, and changes in product line have influenced the decline in employment.

While it was impossible to conclusively assume that unemployment in the selected neighborhoods was totally or largely a function of decreasing manufacturing and related industrial activity, each of the selected neighborhoods was examined with regard to (1) industries in which employment significantly decreased between 1960 and 1965; (2) industries in which employment was maintained or increased during the same period; and (3) the available occupational skills (as deduced from the skill levels of the currently employed and the median educational level of the neighborhoods). The specific findings are summarized on Exhibits E2, E3 and E4 with details given in Appendix 1, Section A.

The factors that these neighborhoods hold in common are more significant than those which make them different.

- All of the selected neighborhoods, except Broadway and Glenville, appear in need of a pronounced economic stimulus, since unemployment rates are higher than the rest of Cleveland, and median family income has actually dropped in some of these areas.
- Numerous workers in each area have lost jobs in each of the five industries considered.
- The retention of the employment opportunities within the five industries in Cleveland is a significant objective and could be a factor in arresting the decline of employment which characterizes much of the City, and is magnified within the eight selected neighborhoods.

In light of the decline in population in the selected neighborhoods, it is significant to note two trends:

- The unemployment rate is still increasing, which would suggest that jobs are being lost to these workers at an even faster rate than workers are leaving the area. There are no statistics to indicate whether the outgoing work force is leaving these poverty areas because they are jobless and must seek work elsewhere, or because they have jobs and can afford to live in better neighborhoods. The median years of school completed has gone up in all areas. (See Exhibit E1 in Appendix 1.) The unemployed group is also declining in absolute numbers, though increasing substantially as a percentage of the population for all these neighborhoods. It is concluded that the decrease is part of an out-migration which encompasses both the employed and unemployed worker. The work force decrease is substantial, and it is in this light that the significance of the rising unemployment percentages may be identified. In the period between 1960 and 1965, industrial employment opportunities in the central city fell by more than 22%.

The composition of the labor force has changed little in spite of both population and job losses in these selected neighborhoods. Those employed in manufacturing accounted for about 40% of the total employed in 1960 (see Exhibit E1). The total number employed decreased by 25,357 by 1965; the number employed in manufacturing decreased by 21,391. The proportion of manufacturing employment to the total labor force decreased within all of but two of the selected neighborhoods (see Exhibit E3). This would suggest that manufacturing industries account for a significantly large share of central city job losses. A significant impact in terms of employment could result from the proposed project by the retention of jobs in manufacturing.

EXHIBIT E 1
EMPLOYMENT - UNEMPLOYMENT IN ABSOLUTE NUMBERS
1960 AND 1965

<u>CLEVELAND</u>	<u>1960</u>	<u>1965</u>	<u>Increase or Decrease</u>	<u>Per Cent Change</u>
Total Number Employed	323,199	297,842	(-25,357)	(- 7%)
Total Number Unemployed	26,137	22,630	(- 3,507)	(-13%)
Number Employed in Manufacturing	138,021	116,630	(-21,391)	(-16%)
Total Labor Force	349,336	320,472	(-28,864)	(- 8%)
Total Population	876,050	810,858	(-65,192)	(- 8%)
<u>SELECTED NEIGHBORHOODS</u>				
Total Number Employed	114,508	86,142	(-28,366)	(-25%)
Total Number Unemployed	14,702	11,952	(- 2,750)	(-19%)
Number Employed in Manufacturing	41,256	26,784	(-14,441)	(-37%)
Total Work Force	129,210	98,094	(-31,116)	(-25%)
Total Population	326,241	277,159	(-49,082)	(-15%)

Source: Characteristics of Selected Neighborhoods - Cleveland, Ohio, April 1965, U.S. Department of Commerce, Bureau of Census.

EXHIBIT E2
EMPLOYMENT IN SELECTED INDUSTRIES

	Cleveland				Selected Neighborhoods			
	1960	1965	Increase or Decrease	% Change	1960	1965	Increase or Decrease	% Change
All Manufacturing	138,021	116,630	(-21,391)	(-16%)	41,256	26,784	(-14,472)	(-37%)
Metals	41,005	34,531	(-6,474)	(-36%)	14,885	9,163	(-5,722)	(-39%)
Machinery	29,409	23,526	(-12,357)	(-20%)	6,683	4,100	(-2,584)	(-39%)
Food	7,692	6,247	(-13,802)	(-19%)	2,269	1,176	(-1,093)	(-49%)
Apparel	7,404	6,014	(-1,390)	(-19%)	2,474	1,899	(-575)	(-24%)
Printing-Publishing	8,005	7,466	(-539)	(-7%)	1,584	1,188	(-396)	(-25%)

Source: Characteristics of Selected Neighborhoods - Cleveland, Ohio, April 1965, U.S. Department of Commerce, Bureau of Census.

EXHIBIT E3

SUMMARY OF EMPLOYMENT STATUS OF POPULATION 14 YEARS OLD AND OVER BY SELECTED NEIGHBORHOODS

	Total Labor Force			Total Unemployed			Manufacturing Employment		
	1960	1965		1960	1965		1960	1965	
				Number	% Labor Force	Number	Number	% Labor Force	Number
Glenville	37,423	32,552		3,633	10%	2,969	11,973	31%	8,503
Hough	28,123	19,588		4,002	15%	2,933	8,054	28%	4,212
West Central	8,844	6,048		1,401	16%	1,267	1,854	20%	1,109
East Central	20,454	14,305		2,546	13%	2,133	5,204	25%	2,883
Kinsman	5,904	4,387		700	12%	572	2,027	34%	1,276
Goodrich	8,694	6,632		780	9%	804	3,510	40%	2,656
West Side	12,386	9,378		1,036	9%	939	5,339	43%	3,866
Broadway-Industrial	7,394	5,204		604	9%	335	3,295	44%	2,310
Total Selected Neighborhoods	129,210	98,094		14,702	12%	11,952	41,256	31%	26,784
Total City of Cleveland	349,336	320,472		26,137	7%	22,630	138,021	37%	116,630

Source: Characteristics of Selected Neighborhoods - Cleveland, Ohio, April, 1965, U.S. Department of Commerce, Bureau of Census

EXHIBIT E4
CHARACTERISTICS OF SELECTED NEIGHBORHOODS
1965

	Population			Employment			Family		
	Total	% White	% Negro	Labor Force	% of Total Un-employed	% of Male Un-employed	% of Female Un-employed	Median Family Income	Median School Years Completed
Glenville	85,441	28%	72%	32,552	10%	7%	12%	\$6,156	10.6 years
Hough	58,979	12%	88%	19,588	15%	13%	18%	\$4,050	9.7 years
West Central	21,442	18%	82%	6,048	21%	19%	24%	\$3,000	9.2 years
East Central	39,564	4%	96%	14,305	15%	16%	14%	\$3,857	9.3 years
Kinsman	14,841	17%	83%	4,387	14%	11%	16%	\$4,164	9.0 years
Goodrich	15,578	89%	11%	6,632	13%	14%	8%	\$5,883	8.8 years
West Side	27,059	97%	3%	9,378	10%	9%	11%	\$5,458	8.9 years
Broadway-Industrial	14,255	97%	3%	5,204	7%	6%	8%	\$6,185	8.9 years
Total Selected Neighborhoods	277,159	25%	75%	98,094	13%	6%	10%		9.8 years
Total City of Cleveland	810,858	65%	35%	320,472	8%	8%	13%		10.3 years

Source: Characteristics of Selected Neighborhoods - Cleveland, Ohio, April 1965, U.S. Department of Commerce, Bureau of Census.

PROJECTION OF DIRECT IMPACT ON EMPLOYMENT

Without detailed specifications as to the industry or industries to be included in the proposed multi-level structure, it was difficult to estimate the direct effect this project would have on employment. But, for most of the proposed industry-site combinations discussed later in this chapter, direct employment is estimated as including 1200 to 2500 employees in manufacturing operations. More employees would be required for service work and maintenance depending on the requirements of the establishments utilizing the building.

The importance of this project, however, does not rest on the employment of up to 2500 workers. It must be measured by its long-term impact on maintaining industrial activity and employment levels in the central city which would otherwise be lost. This is the essence of the "holding action" or defensive concept.

The 1965 study, An Evaluation of Vacant Industrial Buildings and Land and Their Potential established that there are a large number of functionally obsolete buildings still in use in Cleveland. As the companies occupying these buildings develop a need for new space, their choice will be limited in that there is little new industrial space available in Cleveland. These industries will find it necessary to relocate outside the City. This represents a loss of revenue to the City and a possible loss of employment to those who are unable to get to a suburban area because of transportation. The parameters of this study did not permit exploration of this in great detail. However, enough of a trend has been established showing a loss of manufacturing employment (see Exhibits E1 through E4) to show the need for defensive action.

This project thus represents a "holding action" or defensive concept in retaining employment opportunities in Cleveland. Its goal is to provide a new alternative for space to Cleveland industrial firms before more move out of the City. The characteristics of Cleveland as a built up city with limited amounts of vacant industrial land and were defined in the 1965 study. In addition, the existence of surrounding suburbs precludes the City's acquisition of more land. While these characteristics are not universal, they are shared by many other cities.

The demonstration effect of this proposed building can be significant. Should it be successfully developed, the probability is increased that many industries would find multiple tenancy in the central city a plausible alternative to the suburban industrial park, especially for those industries whose efficiency is increased by proximity to downtown suppliers and markets. The impact on the City, in terms of employment, urban renewal and taxes must be considered significant in the long term.

The need for retention of manufacturing employment to improve the economic base of the central city is evident upon examination of available data concerning inner-city neighborhoods. Success of the proposed project can be a significant factor in meeting this need over the long term.

PROJECTION OF INDIRECT IMPACT ON EMPLOYMENT

Because of the fact that industrial employment generates jobs in industries and services which support the base industries, any project which increases direct employment (or slows its rate of decrease) will have indirect employment effects. Research done by the Federal Reserve Bank of Philadelphia by James R. Weskott (Employment Multipliers for the Philadelphia Metropolitan Area) indicates that in the five selected industries considered in this report, expected indirect job generation rates ten years hence will average between 1.54 and 2.12 jobs for each direct job held. This assumes that national growth will remain stable, and that the Philadelphia area's growth parallels the nation's.

In this present study, it was not assumed that such calculations were directly applicable to the Cleveland area due to different industrial composition. However, this indirect employment factor is significant and at least represents the importance of the multiplier concept. The Development Department of the State of Ohio has gathered statistics indicating that 100 manufacturing jobs in a community generate 84 other jobs in non-manufacturing fields, \$468,531.00 in retail sales and \$129,218.00 in bank deposits as well as \$724,776.00 in personal income each year. Again, while not directly applicable to inner-city industry, it reflects the relative importance of manufacturing jobs to the community. Accordingly, the loss of jobs in manufacturing, if allowed to continue, will account for a greater employment loss to Cleveland than direct losses would indicate due to the reverse impact of the multiplier effect.

EVALUATION OF COMMUNITY SUPPORT

Findings Related to Objective 2

During the early stages of this project, interviews were held with persons representing a cross-section of the community. Those interviewed represented the following sectors, and their

reactions to certain basic questions are summarized below:

- Real estate
- Construction
- Industry
- Foundations and quasi-public organizations
- Utilities
- Railroad
- State government
- City government

EVALUATION OF THE EXTENT TO WHICH REPRESENTATIVE COMMUNITY LEADERS FEEL THAT THE PROBLEM OF LOSING CENTRAL CITY INDUSTRY IS IMPORTANT AND WARRANTS SOLUTION

All persons interviewed were generally of the opinion that Cleveland's loss of industry is a problem which should be solved. They viewed this particular project as representing the kind of effort and imaginative approach needed. Representatives of industry felt that small and medium size industrial operations have been neglected in terms of public and private support.

There is general agreement that active support of the City government is necessary for the success of this project or for any efforts aimed at industrial development. Any industrial development effort would have to be incorporated into a program of environmental improvement which would combat problems such as vandalism, pilferage, lack of parking, street congestion, and the general deterioration of the urban environment in Cleveland.

EVALUATION OF THE EXTENT TO WHICH REPRESENTATIVE COMMUNITY LEADERS FEEL THE OBJECTIVES OF THIS PROJECT ARE IMPORTANT.

Generally, interviewees gave their support to the conduct of this study and many offered their assistance or expressed interest in the results. However, their support of the development of a specific multi-level building would depend on its economic feasibility. Further, they felt that this project would have to be placed within the context of the City's total needs and commitments in other economic, social and urban development programs. At the same time, some of the interviewees such as railroads, utilities and real estate interests, have financial commitments in suburban areas, which might tend to influence their thinking about this project.

SELECTION OF INDUSTRIES

Findings Related to Objective 3

One of the initial steps involved the selection of one or more industries as a tenant subject for this study. The general criteria for selection were:

- Industries which can function in a multi-level, multi-tenant building.
- Representative industries, presently located in Cleveland, which would be of long term benefit to the City.
- Industrial groups which include smaller, locally owned and managed firms which help make up Cleveland's industrial base and are a valuable industrial resource.
- Representative industries which are important to the employment of inner city residents.
- Representative industries which have a need for new space or facilities.

Using the Directory of Ohio Manufacturers as a basis for grouping like industrial firms, Cleveland industries were generally analyzed as to the following factors:

- Size and number of firms in Cleveland.
- Number of employees.
- Employment patterns.
- Locational patterns to determine whether the industry tends to cluster and where such clusters are located.
- Patterns of relocation following displacement.
- Extent of functional obsolescence.

From these studies, five industries were selected as possible tenant subjects. Detailed data on the above factors was obtained through research and personal interviews and is summarized in Exhibits E5 through E14. (See Appendix 1, Section C.) The five selected industries were:

- Food and Kindred Products
- Fabricated Metal Products
- Apparel and Related Products
- Printing and Publishing
- Machinery (except electrical)

EXHIBIT E5 FOOD AND KINDRED PRODUCTS - S.I.C. 20

EMPLOYMENT

	1958	1963	1965	1966
County	15,051	11,366*	10,434	9,999
City			9,466**	9,012

* Was 8th largest employer in county with 4.4% of manufacturing employment.

**Cleveland residents accounted for 6,250 or 66% of this total.

PER CENT OF MANUFACTURING WORK FORCE

	1960	1965
City	5.57%	5.35%
Selected Low Income Neighborhoods	5.59% (loss of 1179 jobs)	4.47%

EMPLOYMENT PATTERNS OF FIRMS STUDIED IN CLEVELAND

Number of Firms Studied	Number of Employees									
	1 to 20	21 to 40	41 to 60	61 to 80	81 to 100	101 to 150	151 to 200	201 to 500	501 to 1000	1001 or more
140	71	25	10	8	4	5	7	10		

VALUE ADDED IN COUNTY: Increased by 19% from 1958 to 1963; ranked 9th in 1963.

Source: Real Property Inventory "Sheet A Week" Directory of Ohio Manufacturers, 1965

CHARACTERISTICS OF THE INDUSTRY

The meat and prepared foods groups seem to have a high potential for utilizing the proposed facility. These groups tend to cluster near their major supply sources --- the stockyards on the west side and the Northern Ohio Food Terminal on the east side. Exhibit E6, showing the location of food manufacturers, shows only firms listed in the Directory of Ohio Manufacturers, 1965 and does not reflect the full extent of the Food Terminal cluster. The existence of a cluster of firms tends to attract others because of the strong supply and market advantages. The tendency is toward rental of facilities. Many firms operate in cramped obsolete space because it is difficult for some to obtain financing to build their own quarters and better rental space is not available in the proper location. If efficient and adequate space were available at the proper location, some firms would consider an increase in their rental payments. Current upgrading of federal inspection requirements for meat, fish and poultry and the application of these standards at the state level will require, in many cases, substantial improvement or relocation of existing facilities.

FOOD & KINDRED PRODUCTS - S.I.C. 20

LOCATION OF ESTABLISHMENTS

*** NORTHERN OHIO FOOD TERMINAL**

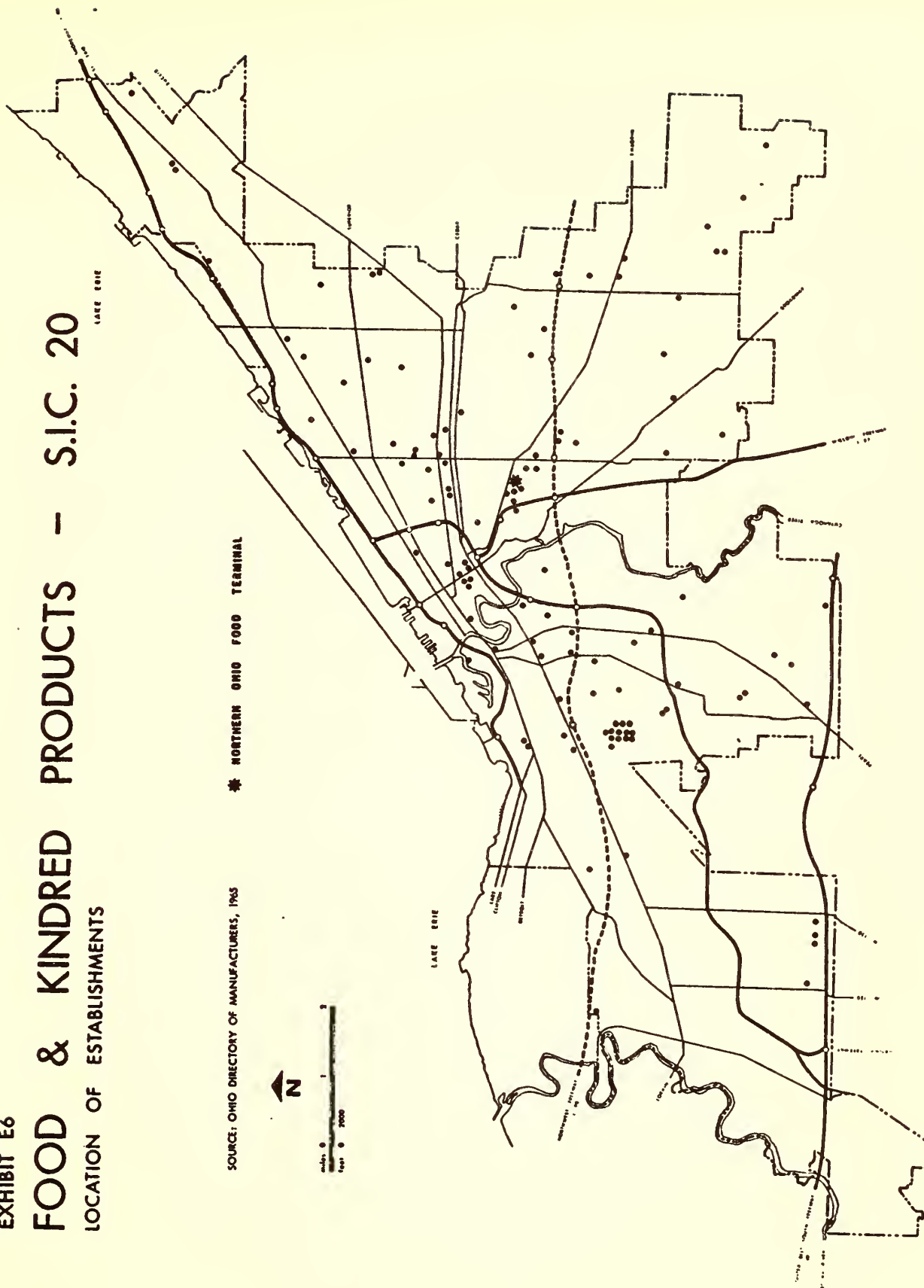


EXHIBIT E7
APPAREL AND RELATED PRODUCTS - S.I.C. 23

EMPLOYMENT

	<u>1954</u>	<u>1963</u>	<u>1965</u>	<u>1966</u>
County City	10,000	8,280*	8,092	8,203
			6,014	

*Was 9th largest employer in county with 3.2% of the manufacturing employment

PER CENT OF MANUFACTURING WORK FORCE

	<u>1960</u>	<u>1965</u>
City	5.36%	5.15%
Selected Low Income Neighborhoods	6.13% (loss of 600 jobs)	6.85%

EMPLOYMENT PATTERNS OF FIRMS STUDIED IN CLEVELAND

Number of Firms Studied	Total	1	21	41	61	81	101	151	201
		to	to	to	to	to	to	to	or
		20	40	60	80	100	150	200	more
60	7,368	32	8	-	4	3	5	2	6

VALUE ADDED IN COUNTY: Increased by 95% from 1954 to 1962; ranked 10th in 1963

Source: Real Property Inventory "Sheet A Week"
Directory of Ohio Manufacturers, 1965

CHARACTERISTICS OF THE INDUSTRY

About 90% of Cuyahoga County's apparel industry firms are located in Cleveland. Several large firms, which produce full lines of men's or women's wear, account for about one-third of the employment; the rest is distributed among a number of small to medium sized companies. The largest number of establishments is in the category of canvas products, grouped in several clusters; these tend to be small and are specialty and service oriented. Except for large establishments, this industry is almost entirely located in older rented quarters. Interviews indicate that building and operational requirements are minimal. This is reflected in the quality of the space in which these firms are able to operate and in the rent which is paid. The industry is heavily concentrated in the central area of Cleveland, largely as the result of the location of available low rental space, and the accessibility of unskilled and semi-skilled labor. Employment includes a high percentage of low skilled females, of whom large numbers are Negro. Since this industry is able to operate effectively in older structures and is not seriously hampered by problems of building obsolescence, it seems to have little need for new, more costly space. Thus, the industry would probably not support higher rents so long as old space is available which can meet its building space requirements.

EXHIBIT B8

APPAREL - S.I.C. 23

LOCATION OF ESTABLISHMENTS

SOURCE: OHIO DIRECTORY OF MANUFACTURERS, 1965

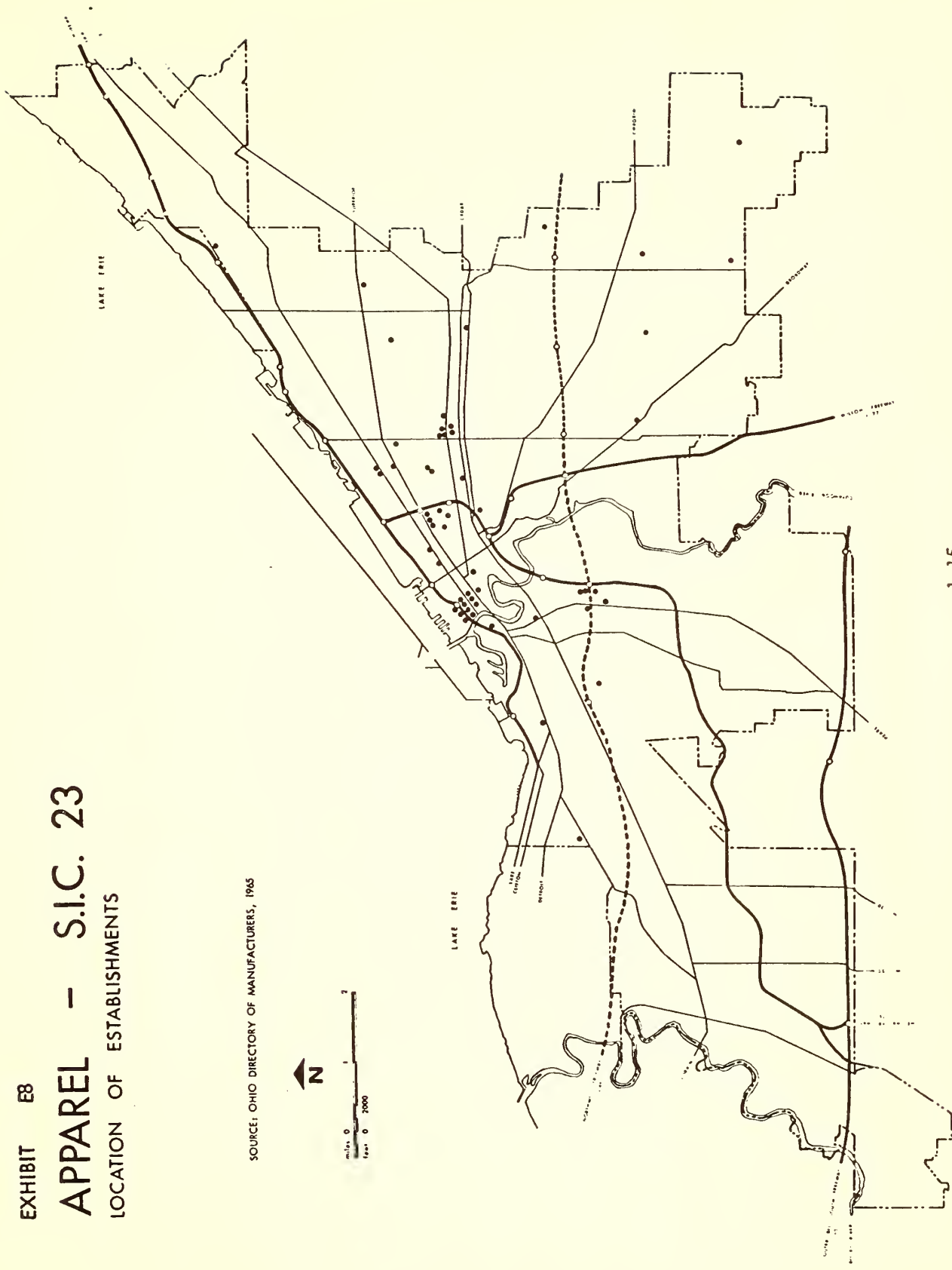


EXHIBIT E9
PRINTING AND PUBLISHING - S. I. C. 27

EMPLOYMENT

	1958	1963	1965	1966
County	13,748	13,542*	15,000	15,357
City			Almost 50%	
*Was 6th largest employer in county, with 5.2% of the manufacturing employment				

PER CENT OF MANUFACTURING WORK FORCE

	1960	1965
City	5.79%	6.40%
Selected Low Income Neighborhoods	3.89% (loss of 395 jobs)	4.48%

EMPLOYMENT PATTERN OF FIRMS STUDIED IN CLEVELAND

Number of Firms Studied	1	21	41	61	81	101	151	201
	to	to	to	to	to	to	to	or
	20	40	60	80	100	150	200	more
308	10,197	229	45	9	5	5	6	2
								7

VALUE ADDED IN COUNTY: Increased by 24% from 1958 to 1963; ranked 6th in 1963

Source: Real Property Inventory "Sheet A Week"
Directory of Ohio Manufacturers, 1965

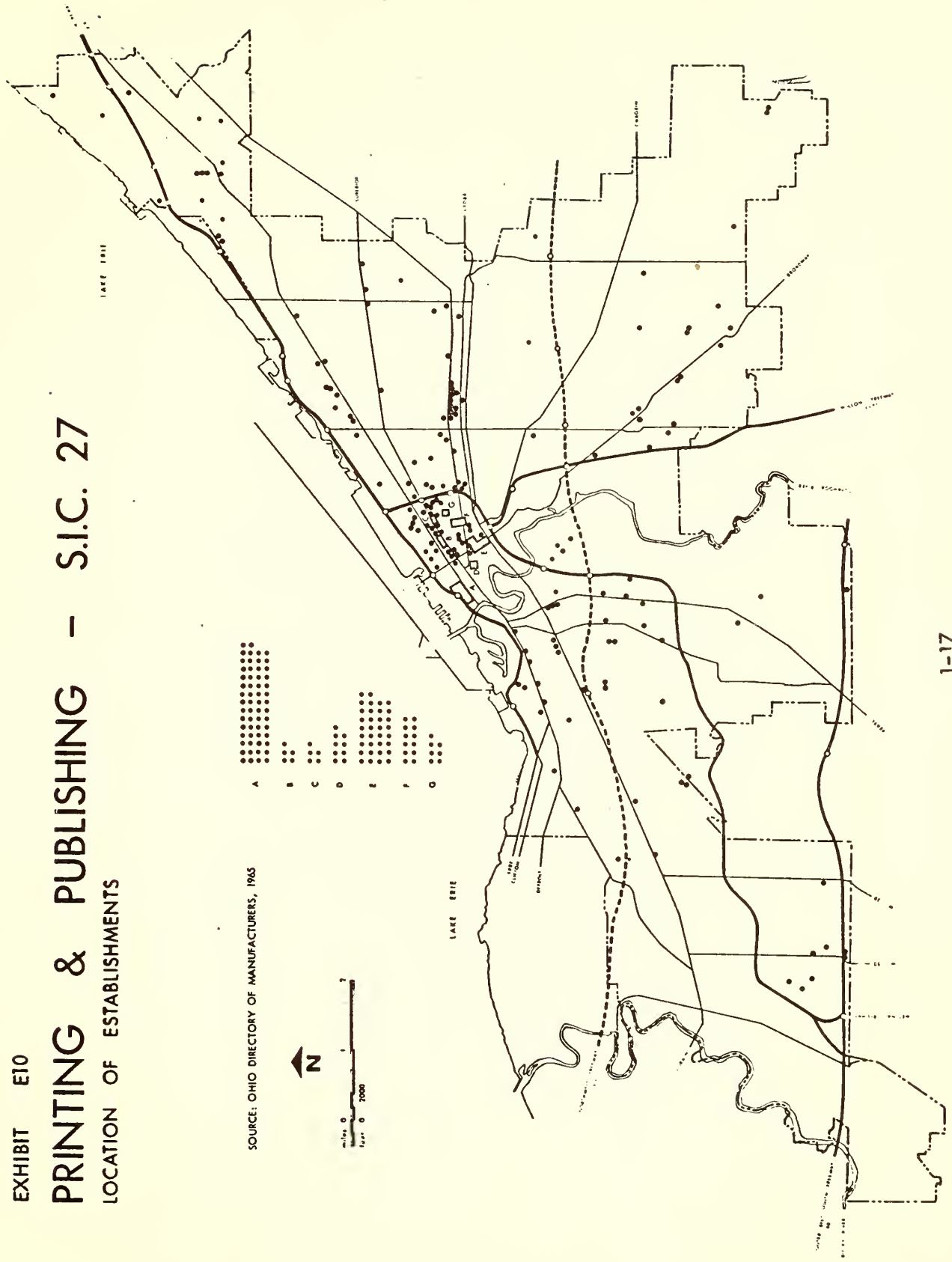
CHARACTERISTICS OF THE INDUSTRY

About 85% of the county's printing and publishing firms and 90% of the industry's jobs are located in Cleveland. The industry shows a tendency to cluster and is heavily concentrated in the downtown area. This reflects a dependency on a location related to primary markets, especially for smaller establishments, and an interdependency between various facets of the industry. The majority of firms, with the exception of very large employers, rent their facilities. Interviews indicate that the supply of suitable space within the City is dwindling for commercial printers, especially because heavier floor loading capacities are required to support larger and faster press equipment. It appears that many firms would support a higher rental rate for a facility with increased floor loading to handle larger, more efficient equipment. Employment is between one-quarter and one-third unskilled and these jobs are concentrated in the publishing or graphic arts firms. The industry has traditionally employed few Negroes. This pattern has begun to change according to industry representatives, and integration is being initiated in both skilled and unskilled work categories.

EXHIBIT E10

PRINTING & PUBLISHING - S.I.C. 27

LOCATION OF ESTABLISHMENTS



EMPLOYMENT

1958 - 1963: county employment static, with slight increase recently
1963: ranked 4th in the county, employing 11.6% of the manufacturing labor force

PER CENT OF MANUFACTURING WORK FORCE

	1960	1965
City	29.7%	29.7%
Selected Low Income Neighborhoods	35.7% (loss of 5,684 jobs)	34.5%

EMPLOYMENT PATTERN OF FIRMS STUDIED IN CLEVELAND

Number of Firms Studied	Total Em- ployed	1 to 20	21 to 40	41 to 60	61 to 80	81 to 100	101 to 150	151 to 200	201 or more
485	27,737	268	96	33	19	9	24	10	26

VALUE ADDED IN COUNTY: Increased by over 23% between 1958 and 1963; ranked 4th in 1963.

Source: Real Property Inventory "Sheet A Week"
Directory of Ohio Manufacturers, 1965

CHARACTERISTICS OF THE INDUSTRY

About 79% of the fabricated metals firms are located in Cleveland, with this industry being the largest employer of Cleveland residents. Within the group studied, the employment characteristics and number of establishments within a given segment of the industry vary significantly. The largest numbers of establishments are in the categories of screw machine products, metal stampings and electroplating and polishing. The industry shows a significant tendency to cluster. Each cluster generally contains one or more electroplating and polishing firms. Metal stamping firms also appear to be distributed to serve various industrial clusters. Location requirements vary within segments of the industry, depending on raw materials used, processes and markets. Interviews did not indicate any preference for ownership or rental of facilities; this appears to be a function of size, with smaller firms tending to rent. Interviews suggest that the industry is finding it difficult to locate in suitable space within existing buildings because of heavy equipment which is needed for many operations and material handling flow requirements.

EXHIBIT E12

FABRICATED METAL PRODUCTS - S.I.C. 34

LOCATION OF ESTABLISHMENTS

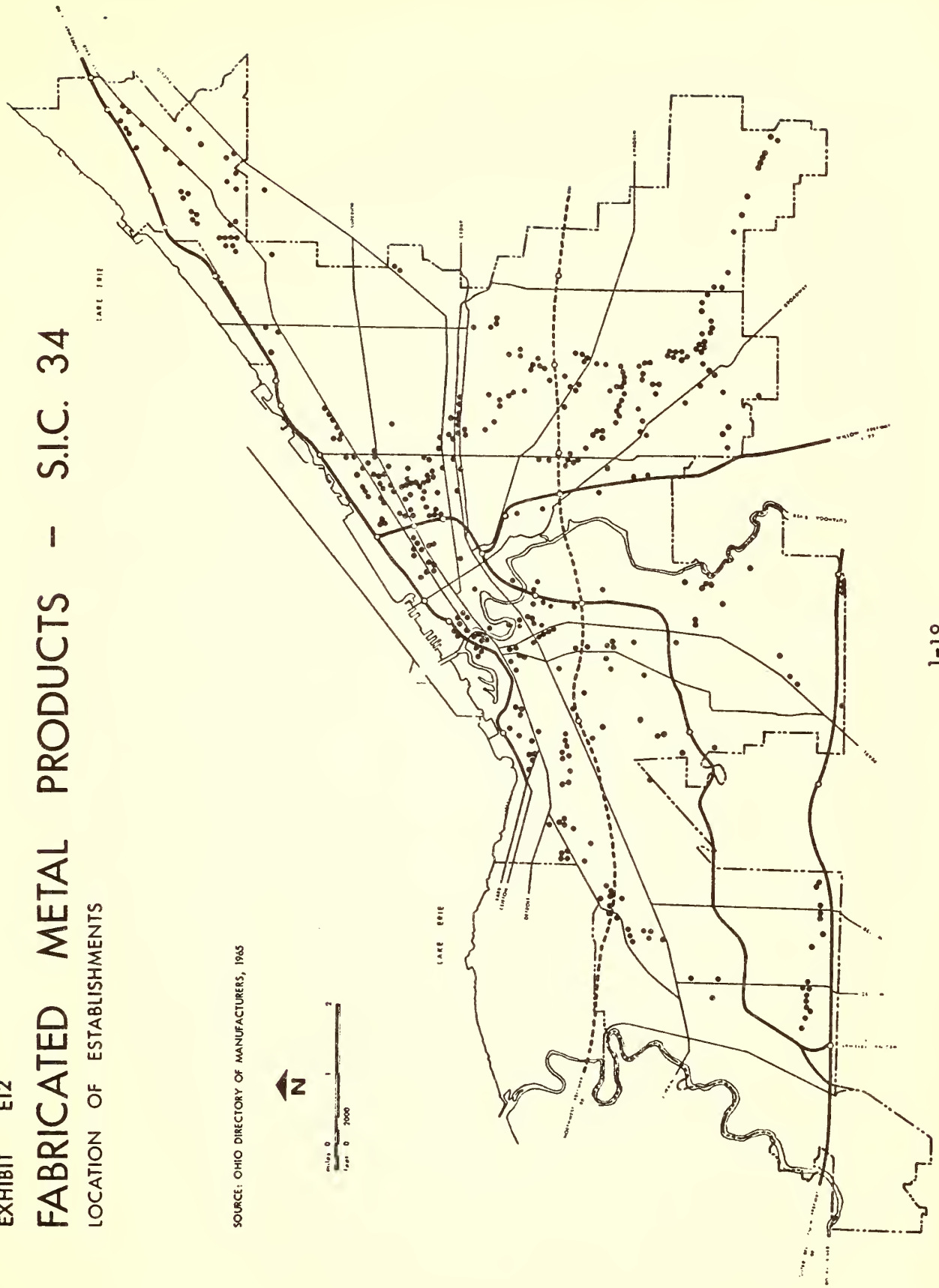


EXHIBIT E13
MACHINERY (EXCEPT ELECTRICAL) S.I.C. 35

EMPLOYMENT

	1958	1963	1965	1966
County	35,092	37,120	39,662	41,771
City			23,526	

CHARACTERISTICS OF THE INDUSTRY

In 1965, about 75% of the machinery companies in the county were located within the City of Cleveland. The single major element is the category of special tools and dies, which has the largest number of establishments and the largest number of employees. Beyond this, the industry is varied in product lines with no other major identifiable element or pattern. There is a tendency to cluster, reflecting common needs as to suppliers, markets and services. Interviews suggest that about one-fifth of the employment in this industry is unskilled. The extent of integration is uncertain. There appears to be a preference for ownership of facilities within the industry where it is financially feasible. Adequate facilities for medium and larger establishments are scarce. While there is a need for new space within this industry, there seems to be limited potential for cost savings through utilizing common facilities due to the specialized nature of individual establishments.

PER CENT OF MANUFACTURING WORK FORCE

	1960	1965
City	21.3%	20.17%
Selected Low Income Neighborhoods	16.18% (loss of 2772 jobs)	14.9%

EMPLOYMENT PATTERNS OF FIRMS STUDIED IN CLEVELAND

Number of Firms Studied	Total	1	21	41	61	81	101	151	201
		to	to	to	to	to	to	to	or
		20	40	60	80	100	150	200	more
551	27,540	379	65	27	16	10	16	6	32

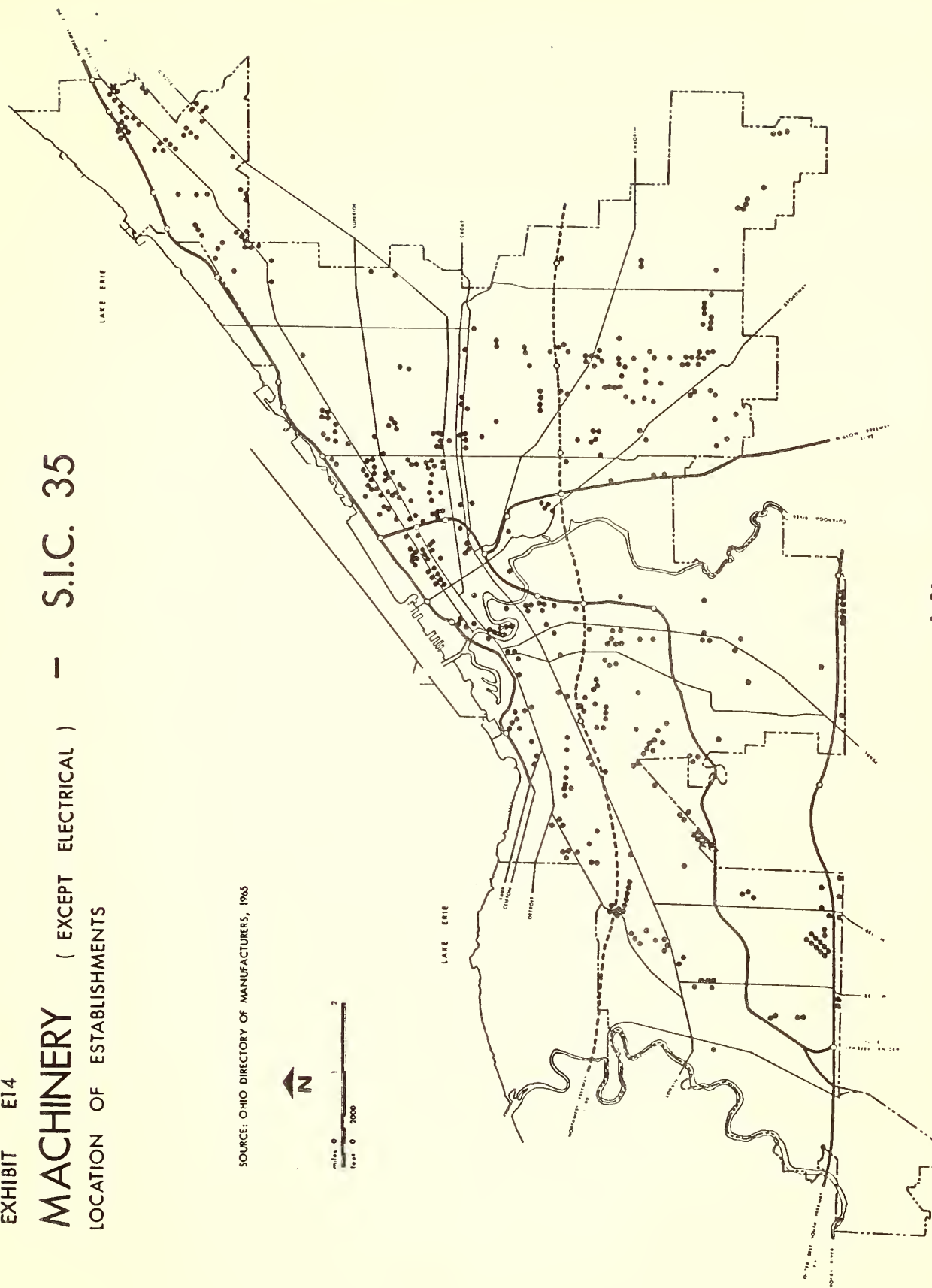
VALUE ADDED IN COUNTY: Increased by 29.4% from 1958 to 1963; ranked 3rd in 1963

Source: Real Property Inventory "Sheet A Week"
Directory of Ohio Manufacturers, 1965

EXHIBIT E14

MACHINERY (EXCEPT ELECTRICAL) — S.I.C. 35
LOCATION OF ESTABLISHMENTS

SOURCE: OHIO DIRECTORY OF MANUFACTURERS, 1963



PRELIMINARY BUILDING PROGRAM

Findings Related to Objective 4

The preliminary building program was developed from several sources of information. Code requirements, interviews with entrepreneurs in each of the selected industries, and research of published data on industrial planning and construction provided the basic criteria for the building program and design. (See Appendix 1, Section D.) Information was gathered and tabulated for each of the five selected industries. This formed the basis for the general building program which is given in Exhibit E15. These general criteria are such as would apply to a multi-level building for any industry. Preliminary building concept studies were carried out to analyze the existing conditions of each site and to test the building program. These studies were limited in scope, but did help to define general building characteristics and areas which would require further study. These are summarized in the next section of this chapter.

The specific program for Prototype One was developed from these studies and is described in Chapter 2 and Appendix 2.

EXHIBIT E15
PRELIMINARY PROGRAM FOR A MULTI-LEVEL,
MULTI-TENANT INDUSTRIAL BUILDING

A. EXTERIOR ENVIRONMENTAL IMPROVEMENT AND CONTROL

1. Aesthetically pleasing visual image
2. Proper location of access roads and control of traffic congestion
3. Control of smoke, dust, fumes
4. Sufficient lot size to prevent encroachment by unrelated uses
5. Location of parking areas, building elements and service areas with respect to characteristics of adjacent uses

B. PHYSICAL SITE REQUIREMENTS

1. Separate and adequate entrances for truck, automobile and pedestrian traffic
2. Separation of internal site functions
 - a. Adequate off-street truck docking and holding areas
 - b. Adequate off-street automobile parking area
3. Unity and balanced functional use of land
4. Establish staging system for future expansion on the site
5. Municipal code requirements, zoning, urban renewal, etc.
6. Tenant safety considerations
 - a. Enclosed, easily accessible controlled parking areas
 - b. Adequate lighting
 - c. Controlled truck docking

C. PHYSICAL BUILDING REQUIREMENTS

1. Flexibility and adaptability to wide range of tenant uses
 - a. Production areas
 - 1) Uniform floor loadings of 200 pounds per square foot to permit relocation of equipment and adjust production flow

- 2) Adequate and uniform bay size of 30' x 30' - maximum economic span for heavy floor loads, flexible for equipment layout and production flow.
 - 3) Uniform minimum ceiling heights of 12' clear to allow for stacking of pallets two high and for overhead chain hoists.
 - 4) Use of grid or similar system for mechanical and electrical systems to facilitate access to all parts of the building and modifications without disruption of production flow.
 - b. Truck docking and holding areas.
 - 1) Floor loads of 250 pounds per square foot to accommodate large tractor trailer trucks.
 - 2) Bay size of 30' x 60' to allow for truck maneuvering.
 - 3) Clear ceiling height of 14'-6" to allow for adequate clearance for tractor trailer trucks.
 - c. Car parking areas.
 - 1) Floor loads of 75 pounds per square foot.
 - 2) Bay size of 30' x 30', adequate for car maneuvering and parking layout.
2. Flexibility for expansion
- a. Adequate structure and floor loading capacity to receive heavier equipment.
 - b. Use of combination long and short term leases.
 - c. Modular structural systems and partitioning systems to permit horizontal modifications and expansion.
3. Efficient location of employee facilities.
- a. Adequate facilities in close proximity to major production areas to permit control and avoid time losses.
 - b. Possible use of some common facilities such as toilets and lockers by groups of tenants, providing a cost savings.
 - c. Size of typical tenant firm would be 20 to 50 employees, resulting in need for 300 to 500 square feet per employee per work shift.

EXHIBIT E15 (continued)

4. Provision for central facilities such as lobby-reception area, cafeteria, medical facilities, storage areas, to permit cost economies and internal building efficiency.
5. Provision for common support facilities such as secretarial and duplicating service, truck maintenance and repair, to make these accessible to firms which could not afford them on an individual basis.
6. Tenant safety considerations
 - a. Controlled building entrances
 - b. Central building security

D. MATERIAL HANDLING REQUIREMENTS

1. Rail spur immediately adjacent to building
2. Dock area for loading and unloading
 - a. Able to handle tractor - trailer units up to 65 feet long
 - b. Should be 15 feet wide
 - c. Should be covered
 - d. Easily accessible to freight elevators
3. Use of elevators for vertical material handling and fork lift trucks for horizontal movement
4. Central building management service to operate all facets of material handling system, including scheduling of truck and rail docking, loading, unloading, and internal circulation.

SELECTION OF SITES

Findings Related to Objective 5

The selection of potential sites was carried out concurrently with the selection of industries, and generally was executed in these stages:

- Identification of areas within the City which have potential for meeting the industrial development requirements and overall objectives of this project.
- Identification of areas within the City which represent several types of industrial environments in order to evaluate the proposed building concept.
- Identification, within those significant areas, of specified sites which reflect the requirements of the industries and with significant development potential.

Information was mapped and evaluated and served as the basis for selecting three areas for detailed analysis. (See Appendix 1, Exhibits E22 through E24.) These are identified as Gladstone, Downtown and Lakeside. (See Exhibit E16.) The three areas were studied in detail for the purpose of selecting a site which would meet the requirements of this project.

The analysis was carried out in the following manner:

- Field survey was made of each area, by which data was gathered as to the apparent exterior building conditions, existing land use, extent of land and building vacancy, rail facilities, public transit.
- Aerial photographs were used to verify the field survey data.
- Ownership data was assembled from county records, with particular regard to ownership patterns and public ownership.
- All data was recorded on a survey form specially prepared for use in this study. (See Appendix 1, Exhibit E25.)
- Relevant data was recorded on base maps for each area. These maps are reproduced in this chapter as Exhibits E19, E20, E28, E29, E36 and E37, and in Appendix 1 as Exhibits E26 through E31.

Based on the analysis of each industry and the evaluation of the three geographical study areas, it was determined that potential does exist for the development of a particular type of building within each area:

- A printing and graphic arts building in the Downtown area.
- A food processing and distribution building in the Gladstone area.
- A machinery and fabricated metals manufacturing building in the Lakeside area.

Detailed study of possible sites within each area resulted in the selection of a primary site for development in each of the three areas. In order to test the building program and the holding capacity of these sites, preliminary building concept studies were made. These matched the program requirements of each particular industry with the site believed to be appropriately located for that industry. The data for each site is summarized in the set of exhibits which follows:

- Downtown Site - Exhibits E17 through E25
- Gladstone Site - Exhibits E26 through E33
- Lakeside Site - Exhibits E34 through E41

SITE STUDY AREAS AND SELECTED NEIGHBORHOODS

- SELECTED NEIGHBORHOODS
- PROPOSED MODEL CITY AREA
- DOWNTOWN SITE STUDY AREA
- GLADSTONE SITE STUDY AREA
- LAKESIDE SITE STUDY AREA

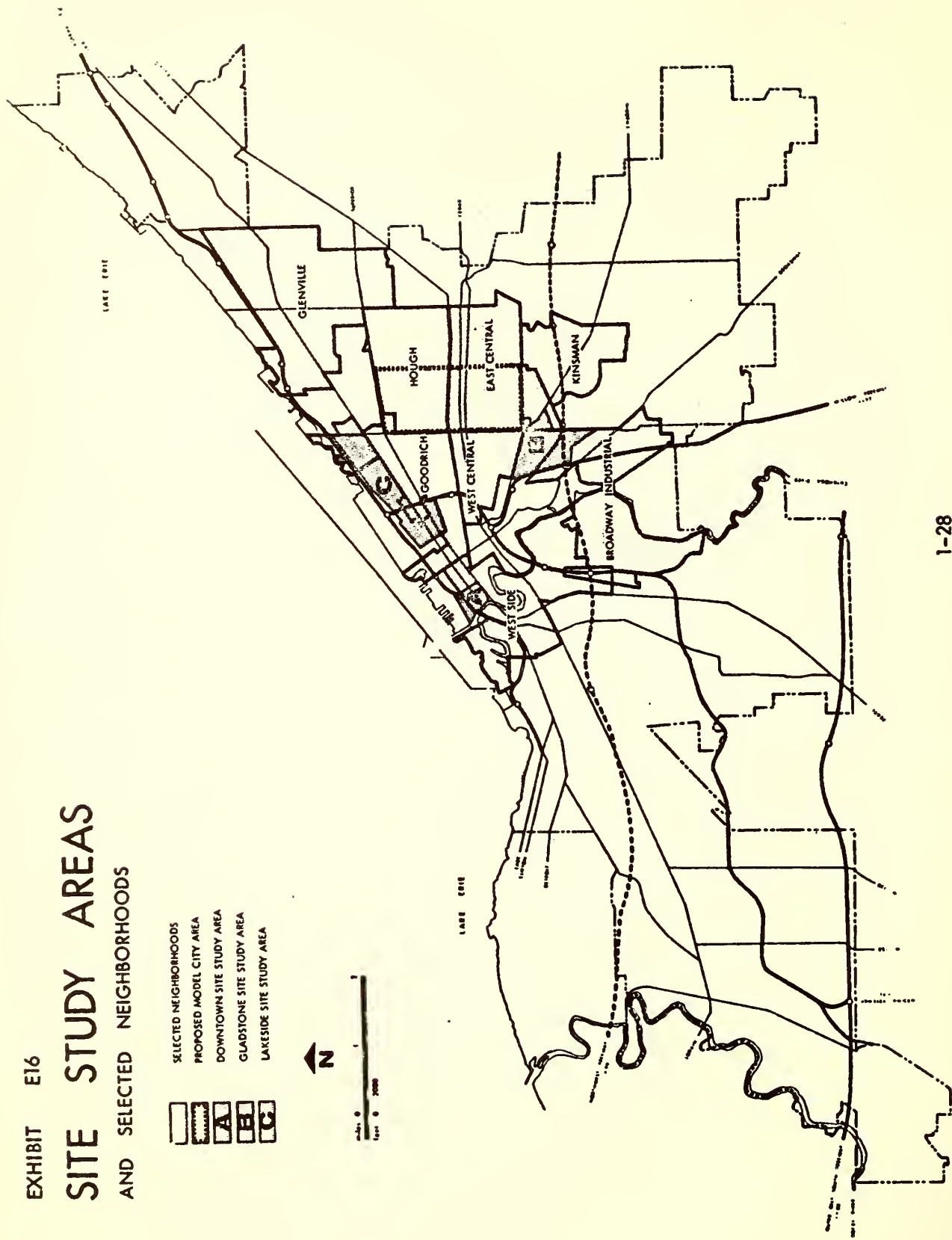
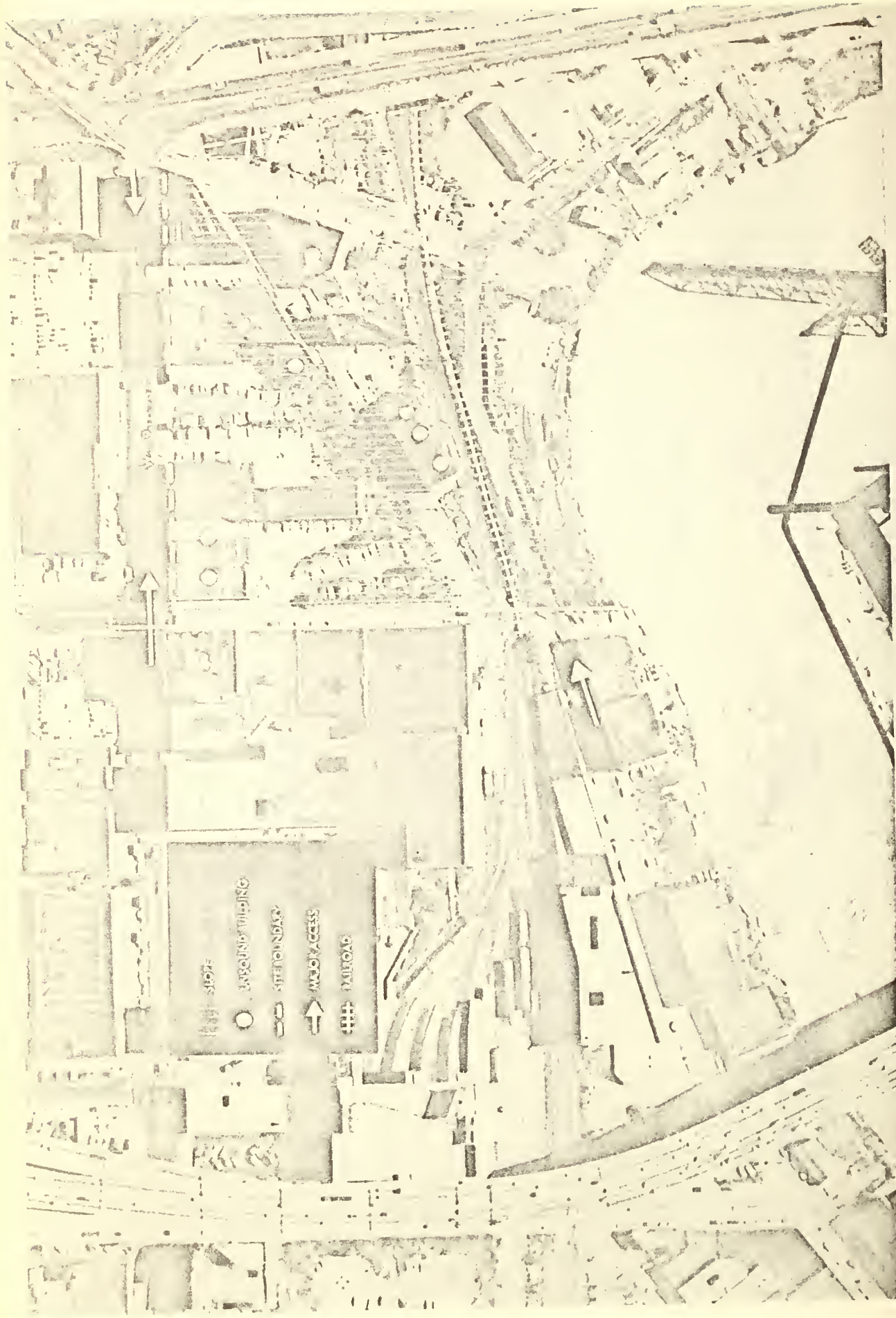


EXHIBIT E17 CHARACTERISTICS - DOWNTOWN SITE

- Located three blocks west of downtown Cleveland
- Immediately adjacent to Near West Side Urban Renewal Area
- Accessible to all selected neighborhoods by public transportation
- Zoned for industrial use
- Contains concentration of printing and publishing firms
- Less than five minutes driving distance from I-90, I-71 and I-77
- Site 50% vacant or used for parking lots; buildings on remainder are partially vacant and in dilapidated or deteriorating condition
- Ownership by several private parties, including railroad
- Access directly from two major east-west arteries
- Within walking distance of several bus lines and rapid transit
- Size is 10 1/2 acres
- Rail spur runs through site
- Soil conditions limit building height to 6 - 8 stories

The location of this site and its access to public transit, major highways and railroad lines, as well as the existing concentration of printing and publishing firms in the area, makes this site appropriate for a multi-level building for the printing industry. The negative factors are that the multiple ownership makes acquisition difficult and there is limited area for expansion. However, being on a heavily traveled route, a prototype building on this site would have a major impact on the Near West Side and Downtown area.



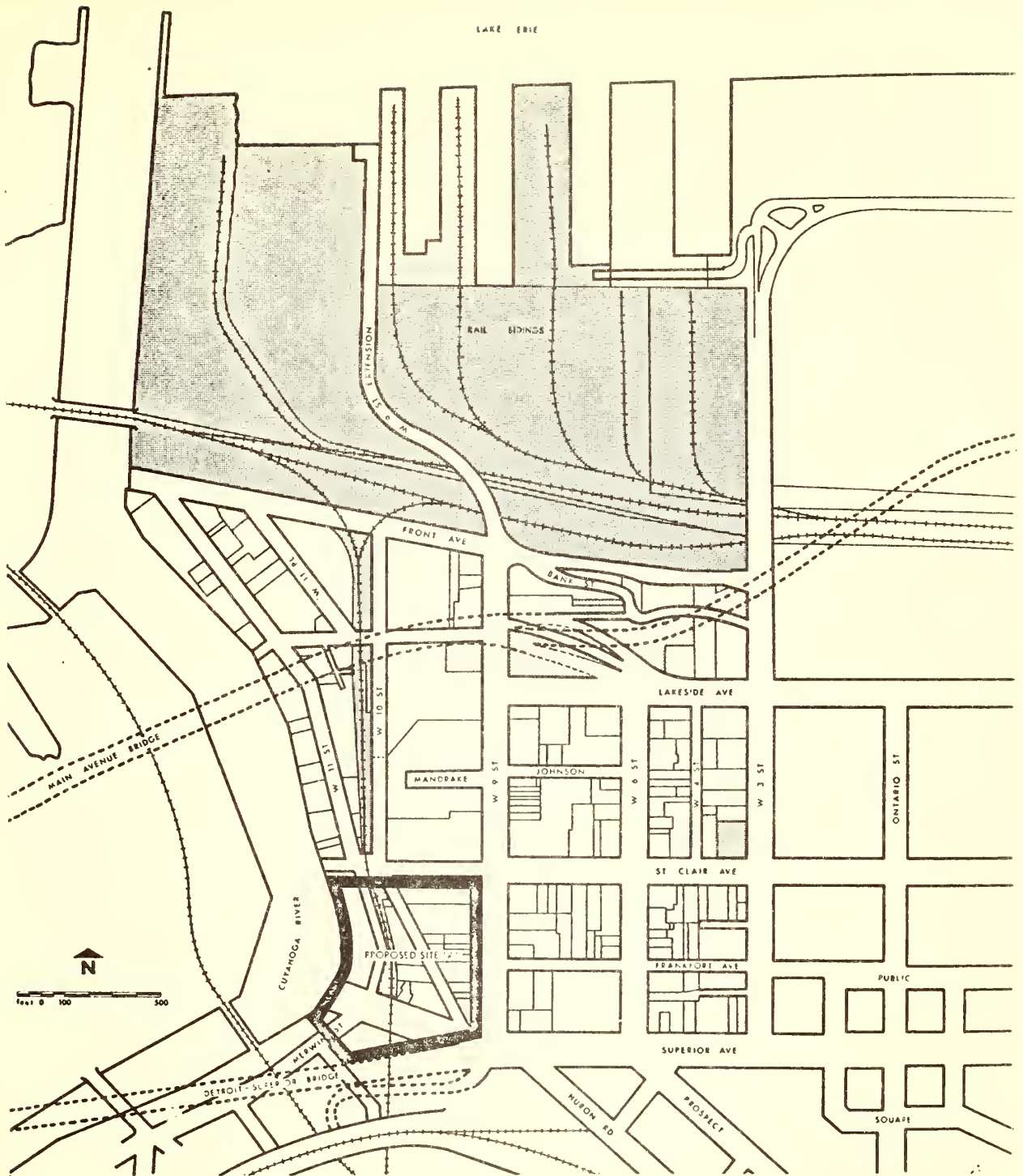


EXHIBIT E19

LAND OWNERSHIP

AREA 'A' - DOWNTOWN

- PUBLIC OWNERSHIP
- RAILROAD OWNERSHIP



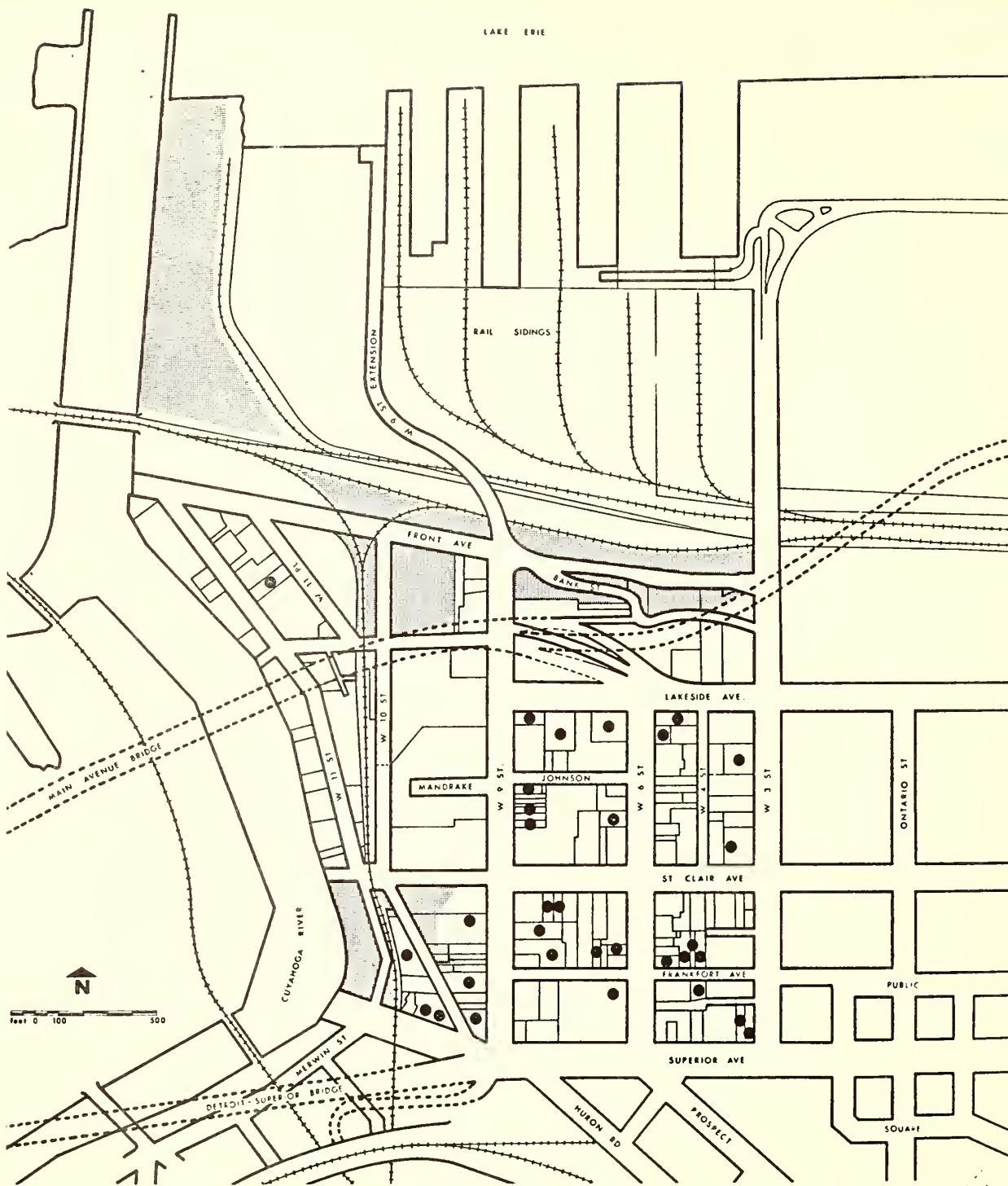


EXHIBIT E20

VACANT LAND & BUILDINGS

AREA 'A' - DOWNTOWN

- VACANT LAND
- FULLY VACANT BUILDING

EXHIBIT E21
DOWNTOWN SITE BUILDING CONCEPT STUDY

EXISTING SITE CHARACTERISTICS AND ANALYSIS: Access to site available from three sides off St. Clair Avenue, West 9th Street and Superior Avenue. The site slopes from east to west in several steps, dropping some 80 feet from West 9th Street to the Cuyahoga River. Railroad tracks go through the site from north to south. Soil conditions set the maximum building height at 6 to 8 stories.

USE: Printing/graphic arts and supporting services including retail and wholesale.

DESIGN CONCEPT: The basic design concept identified several major elements including a series of levels descending from the West 9th Street elevation to the river for parking and for heavy production. The lowest two levels (levels 4 and 5) with rail and river access could be utilized for warehousing and paper wholesaling. Rising above the West 9th Street elevation are several smaller floors for light production and service uses. The West 9th Street elevation could be used for employee service and retail operations, and a landscaped deck. Internal truck ramps and auto ramps for each of the levels could minimize the need for vertical transportation. Upper floors served with elevators to the West 9th Street level.

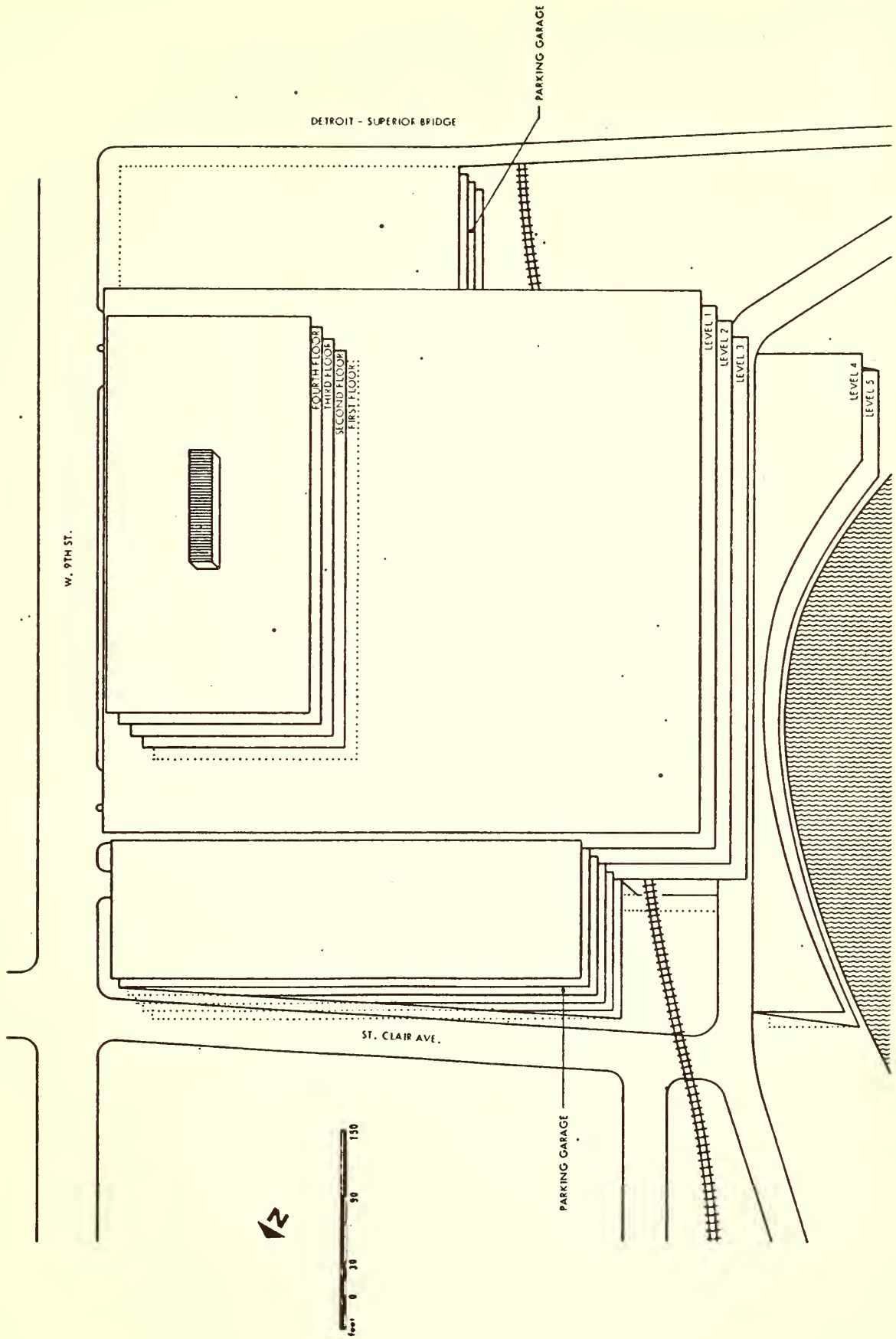
PARKING: Parking decks are provided at both the north and south ends of the project, with entrances located at West 9th (with possible entries at St. Clair) on the north, and West 11th on the south. Combined car and truck entry and exit drives are on West 9th Street. Two parking levels correspond to one tenant level, thereby providing convenient horizontal pedestrian flow to and from the tenant space.

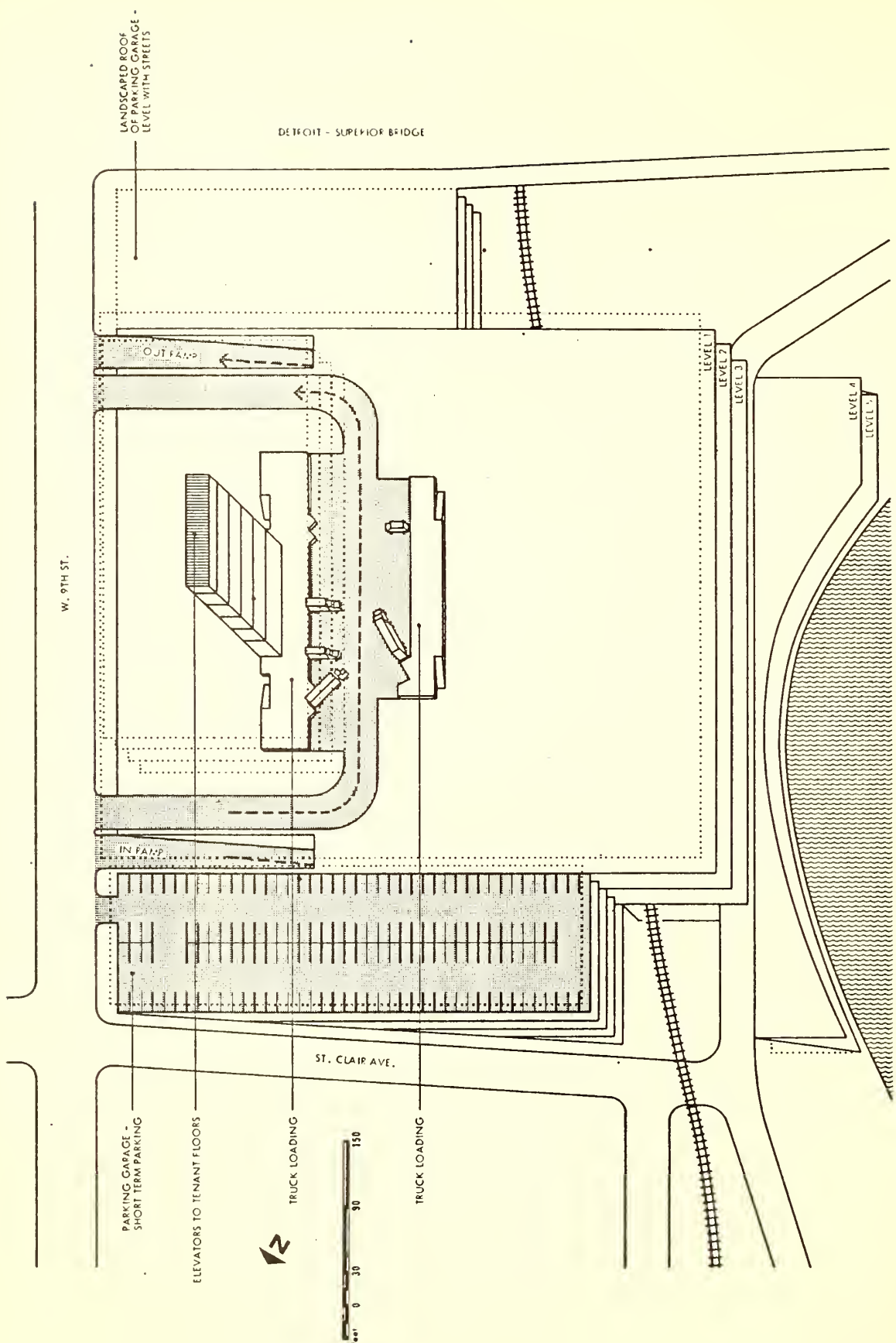
RAIL: Existing rail lines are located on the west side of the site, one level above the Cuyahoga River. The rail siding and docking facilities could, therefore, be provided at the two lowest levels, and ramp connections could be provided to the various tenant levels. Fork lift trucks would be used to distribute materials throughout the building complex via these interior ramps.

VERTICAL CIRCULATION: Passenger elevators would be required for vertical movement between all levels. For the five levels below West 9th Street grade, a series of ramps would provide material handling and truck movements. Material handling elevators would be required for distribution from level 1, at West 9th Street grade to the upper floors.

EXHIBIT E22
BUILDING CONCEPT SUMMARY
DOWNTOWN SITE

LAND AREA		10 1/2	acres
AMOUNT OF LAND REQUIRED			
Streets		75,000	square feet
Other		382,000	square feet
Total		457,000	square feet
DEMOLITION REQUIRED			
Number of Buildings to be Demolished		21	
NUMBER OF ENTRY DRIVES			
Auto		1	
Truck		2	
Combined		2	
Total		5	
RAIL SERVICE			
Number of Sidings			varies
Car Capacity			varies
TRUCK SERVICE			
Truck Capacity	approximately	30	per floor
Area Allocated		89,000	square feet
Number Floors with Direct Truck Service		3	
Area Per Level			varies
PARKING		1,000	
Capacity		360,000	square feet
Area Allocated		5 and 3	
Number of Levels	upper	50,000	square feet
Area Per Level	lower	36,000	square feet
BUILDING COVERAGE			
Area		354,000	square feet
Per Cent of Land Area		77	per cent
RENTAL SPACE			
Number of Floors		9	
Area Per Floor		variable	square footage
Total Area		1,269,000	square feet





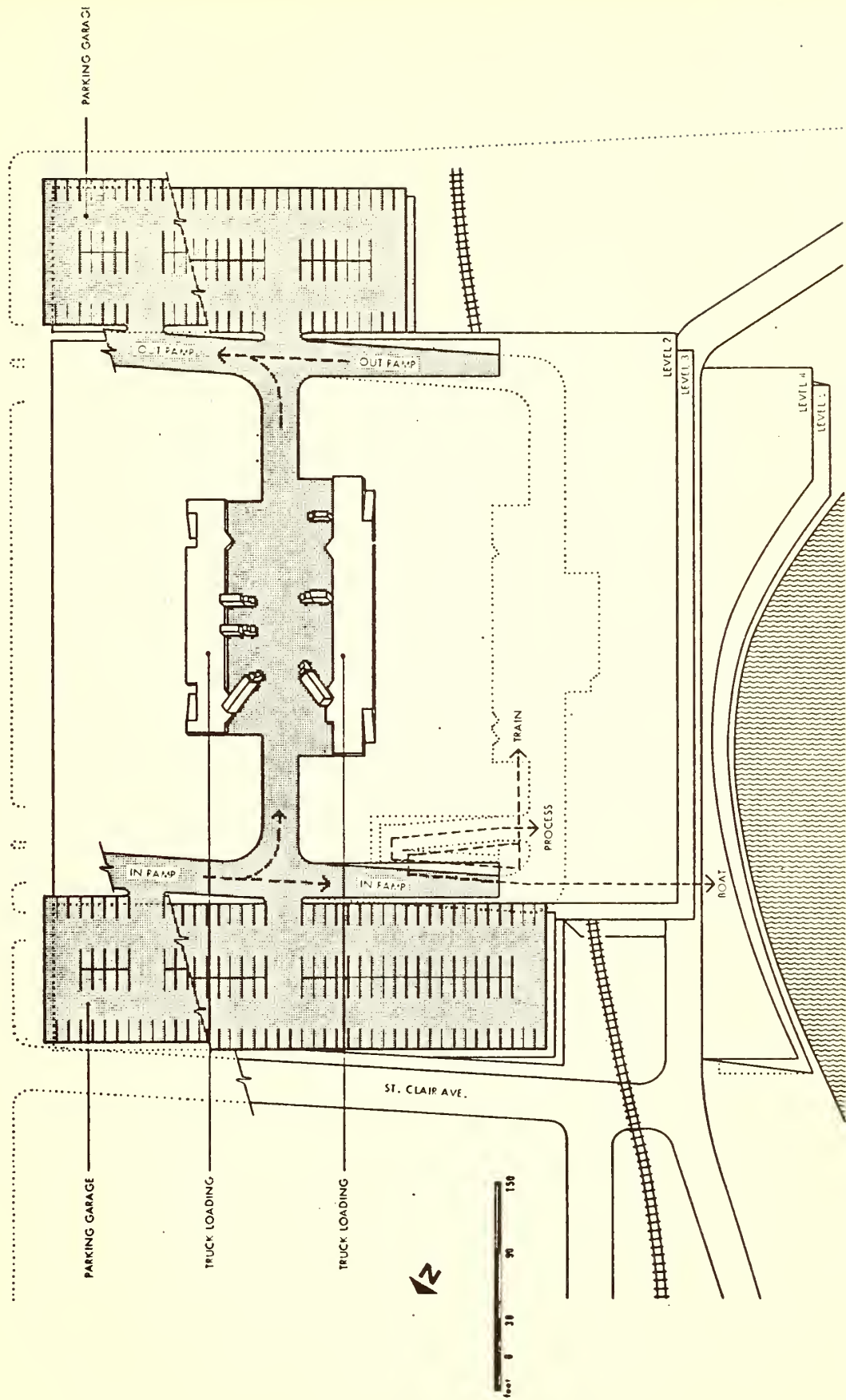


EXHIBIT E26
CHARACTERISTICS - GLADSTONE SITE

The Gladstone Urban Renewal Area would benefit from the stimulus of a prototype multi-level building. It would set a standard of appearance and help improve the public image of the area. The location of a prototype multi-level food industry building in Gladstone would provide a valuable tie-in with the Model Cities Program. The firms located there could provide a training area for the Woodland Job Center and, by the same token, could get the benefit of a source of trained labor.

- Proximity to projected Model Cities area
- Located about five minutes driving distance southeast of Downtown
- Access to I-77 within 10 blocks
- Contains concentration of food industry firms located in and around Northern Ohio Food Terminal
- Area designated for urban renewal, with industrial use projected
- Site is 9 1/2 acres, with up to 15 acres available for future expansion
- Entire site owned by City of Cleveland, available for immediate use
- Major rail switching yard with team tracks is adjacent to site
- Access directly to site from major east-west street
- Access to bus lines and walking distance to rapid transit
- Located in one of selected neighborhoods immediately adjacent to four others
- Soil conditions allow building height of about 10 stories
- Proximity to Woodland Job Center

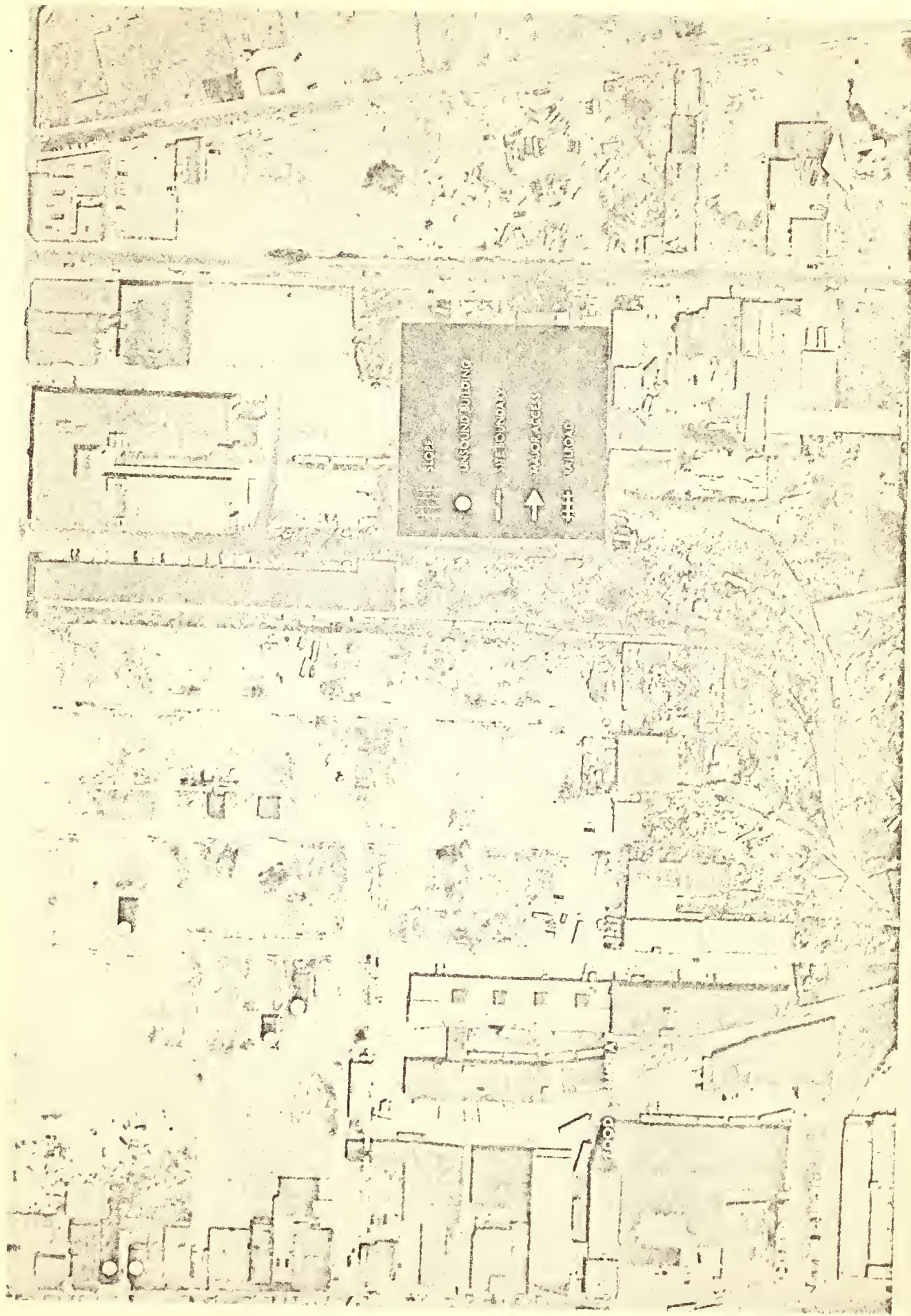


EXHIBIT E28
LAND OWNERSHIP
 AREA 'B' - GLADSTONE

SOURCE: CUYAHOGA COUNTY TAX MAPS, JUNE 1967
 PUBLIC OWNERSHIP
 RAILROAD OWNERSHIP

1/2

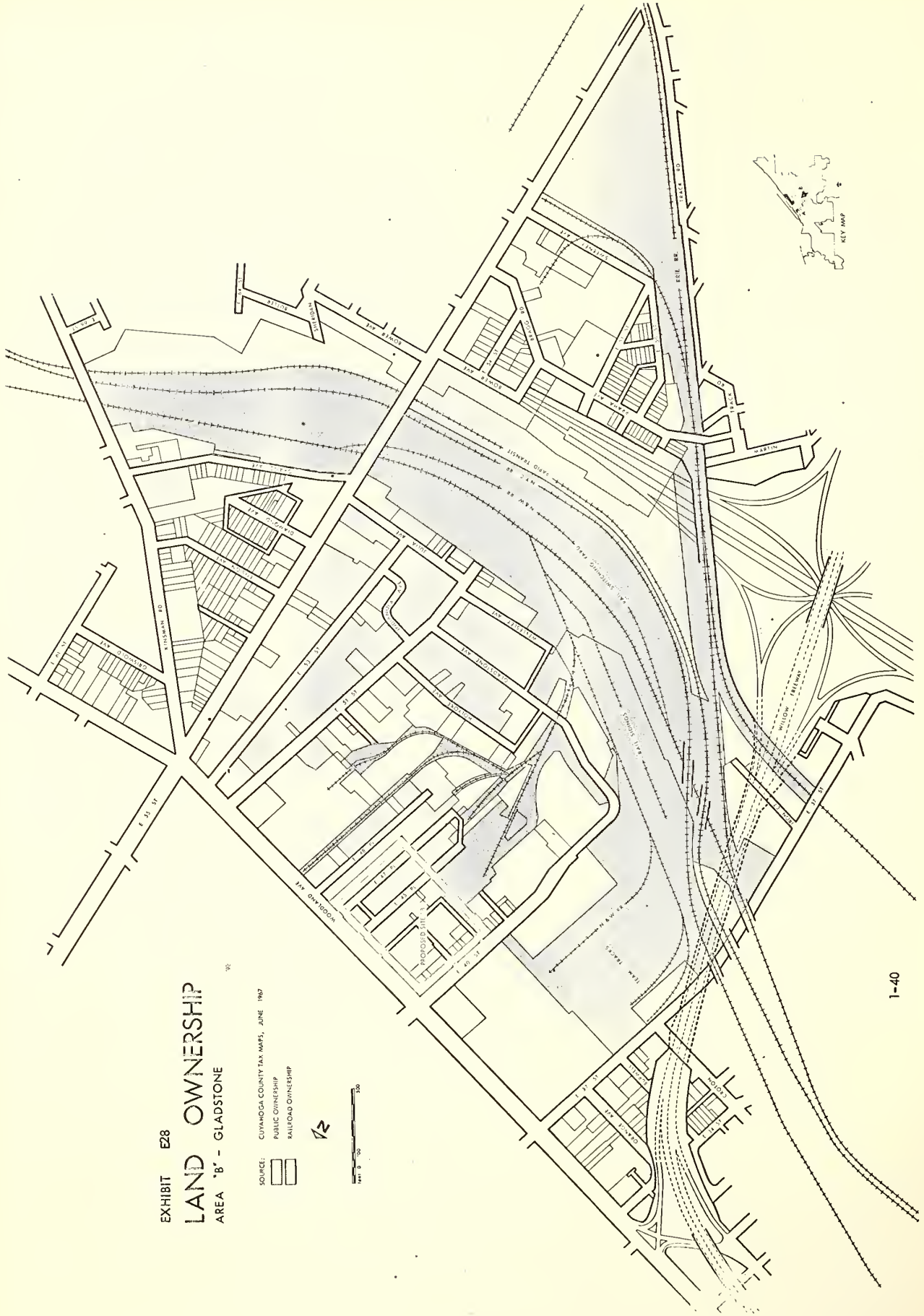


EXHIBIT E29
 VACANT LAND & BUILDINGS
 AREA 'B' - GLADSTONE

SOURCE FIELD SURVEY, JUNE 1987
 VACANT LAND
 PARTIALLY VACANT BUILDING
 TOTALLY VACANT BUILDING

12



1-41

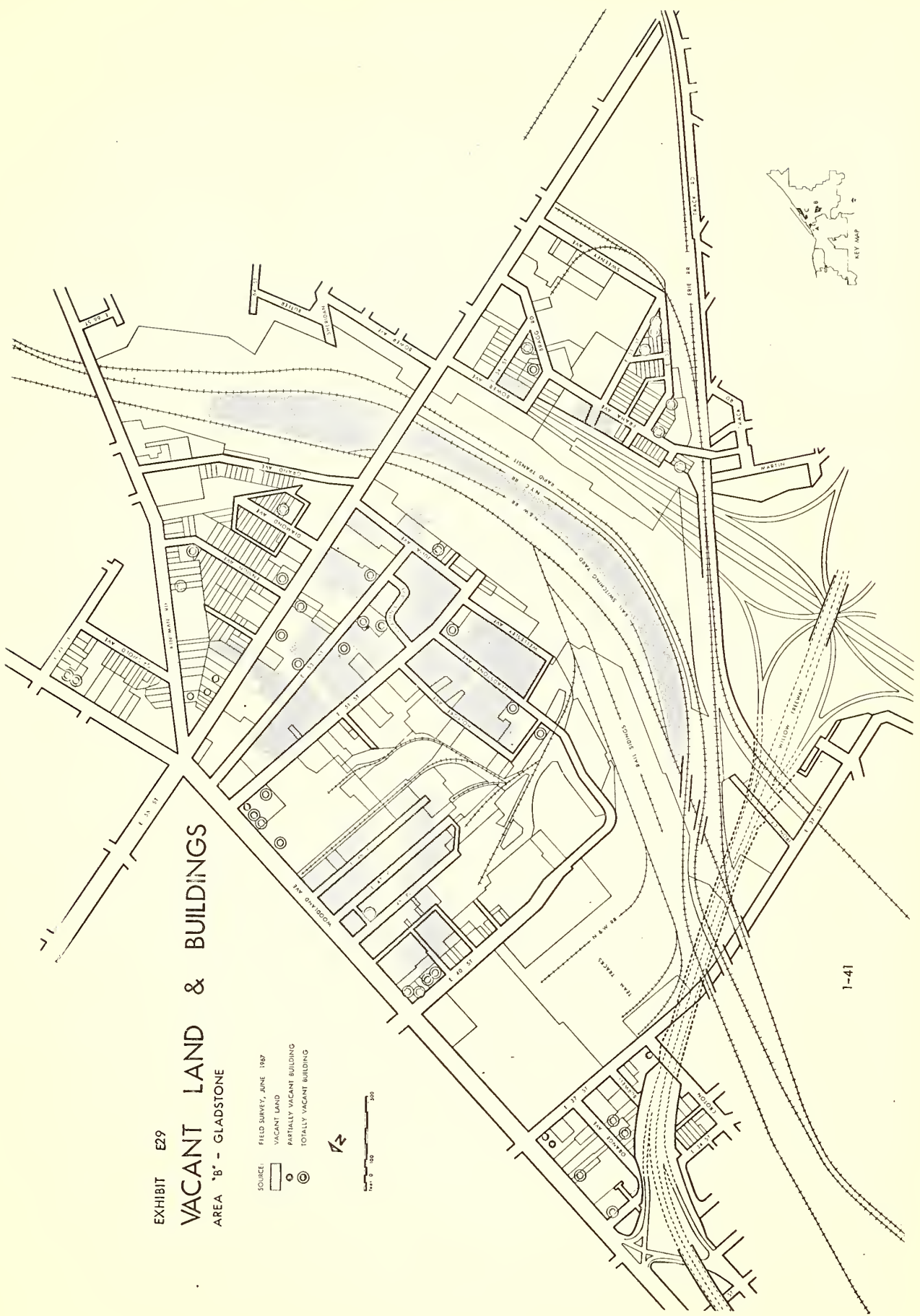


EXHIBIT E30
GLADSTONE SITE BUILDING CONCEPT STUDY

SITE CHARACTERISTICS AND ANALYSIS: The site is essentially flat and rectangular in shape. Major access for vehicular and pedestrian traffic is from Woodland Avenue. Rail spurs are available for extension into the site from the south. Preliminary soil analysis indicates that maximum building height would be about 10 stories. These studies indicated that some modification of the urban renewal disposition and a new street and rail plan would be required to develop adequate land use modules for off-street truck holding and maneuvering areas, and appropriate building and service relationships. The site is located only several blocks from the southern portion of the proposed redevelopment under the Model Cities program.

USE: Food processing, storage, distribution and supporting services including retail and wholesale.

DESIGN CONCEPT: The basic concept of the design was to permit the efficient movement of goods between rail and truck as required by food operation as well as the flow of goods from both rail and truck to production or storage areas. Central cooling equipment could be used to serve tenant areas as well as a central cold storage warehouse facility which may be included in the building. Other support facilities such as a restaurant or branch bank could be included to serve the entire facility.

PARKING: Below grade parking would be located under the truck loading areas. The parking entrance would be on Woodland Avenue and exit on the new street east of the facility, as proposed in the Gladstone Urban Renewal Plan.

RAIL: Rail spurs located in the center of the site would divide the building into two equal units. The location of the rail spur is revised somewhat from the location shown on the Gladstone Urban Renewal Plan. Part of the area adjacent to the rail docking facilities could be assigned to warehouse use and for transfer to trucks.

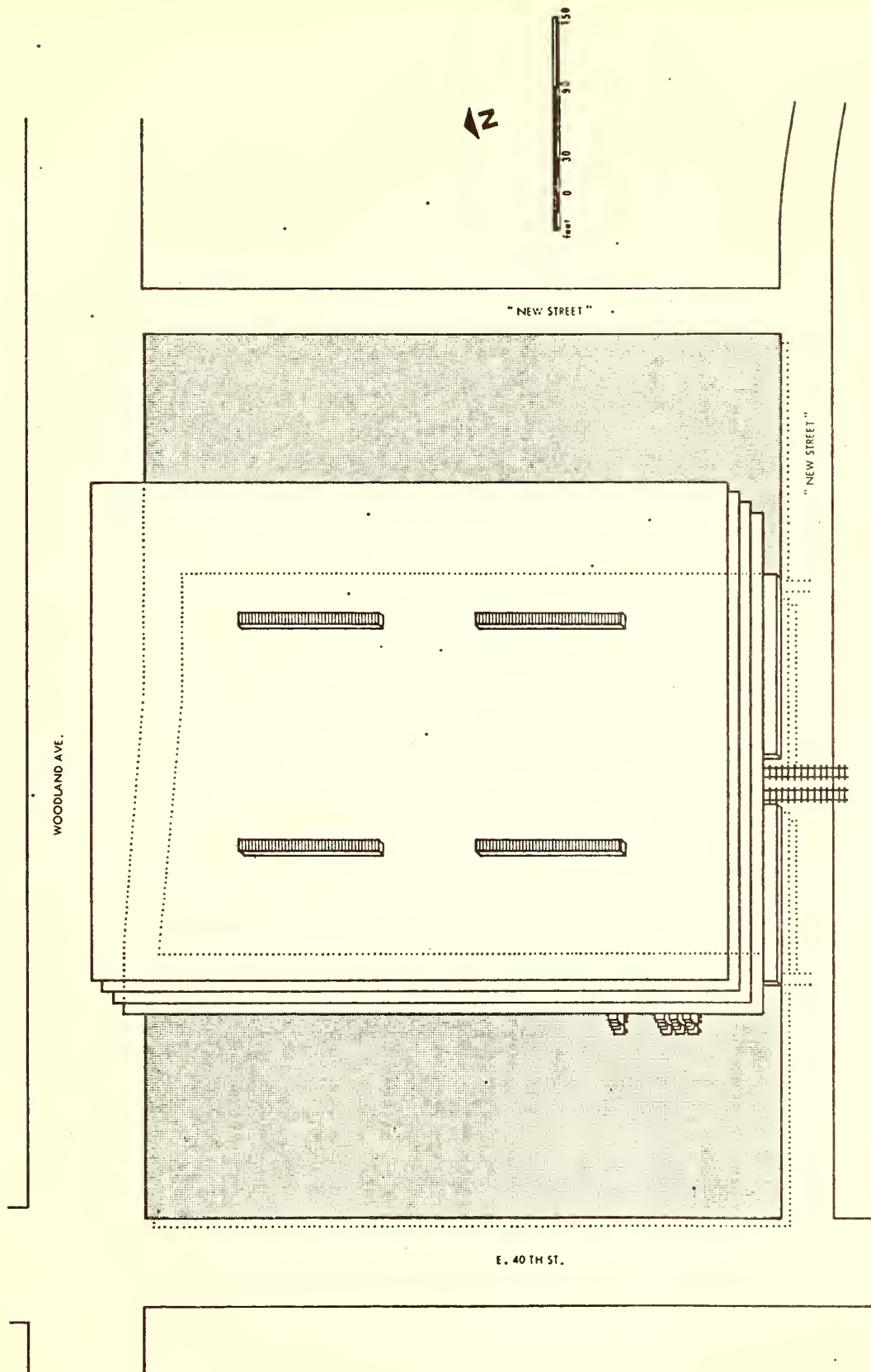
TRUCK: Continuous truck docking space would be provided along the entire west and east side of building at grade. Sufficient holding and maneuvering areas would be located on site. The second floor level would also be used as a truck loading area. This would handle small trucks, would provide a second dock area for shipping and receiving. This level would be accessible by a ramp on the Woodland Avenue side of the building.

VERTICAL CIRCULATION: Vertical circulation facilities serving tenant space and dock areas could be developed on each side of the rail spurs. Material handling facilities could include freight elevators, continuous drag chains and similar devices to provide direct flow between the dock area and tenant storage space. Passenger elevators would serve the tenant space and extend into the parking area below.

WASTE REMOVAL: This is a major problem in any food facility. Therefore, a conveyor system at the base of all loading docks is proposed to carry waste to a central waste removal facility. Similar means could be installed to carry waste from upper levels within the vertical circulation elements.

EXHIBIT E31
BUILDING CONCEPT SUMMARY
GLADSTONE SITE

LAND AREA		9 1/2	acres
AMOUNT OF LAND REQUIRED			
Streets		39,000	square feet
Urban Renewal Land		350,000	square feet
Total		389,000	square feet
NUMBER OF ENTRY DRIVES			
Auto		4	
Truck		5	
Total		9	
RAIL SERVICE			
Number of Sidings		2	
Car Capacity		14	
Area Allocated for Rail Service		20,000	square feet
TRUCK SERVICE			
Truck Capacity	approximately	100	
Area Allocated		250,000	square feet
Number Floors with Direct Truck Service		2	
Area Per Level	Upper	38,900	square feet
	Lower	210,400	square feet
PARKING			
Capacity		1,315	
Area Allocated		526,000	square feet
Number of Levels		1 and 2	
Area Per Level	Upper	368,000	square feet
	Lower	158,000	square feet
BUILDING COVERAGE			
Area		221,000	square feet
Per Cent of Land Area		50	per cent
RENTAL SPACE			
Number of Floors		3	
Area Per Floor	approximately	221,000	square feet
Total Area		624,100	square feet



WOODLAND AVE.

DELIVERY TRUCKS TO 2ND LEVEL

TRAIN TO TRUCK

TRUCK TO PROCESS
PROCESS TO TRUCK

ELEVATORS TO TENANT FLOORS
TRUCK AND TRAIN LOADING PLATFORM
TRUCK LOADING AND HOLDING AREA

"NEW STREET"

"NEW STREET"

REFUSE CONVEYOR

SUBSURFACE CAR PARKING

E. 40 TH ST.

12

0 30 90 150

DRAWING 2
EXHIBIT E33

BUILDING CONCEPT

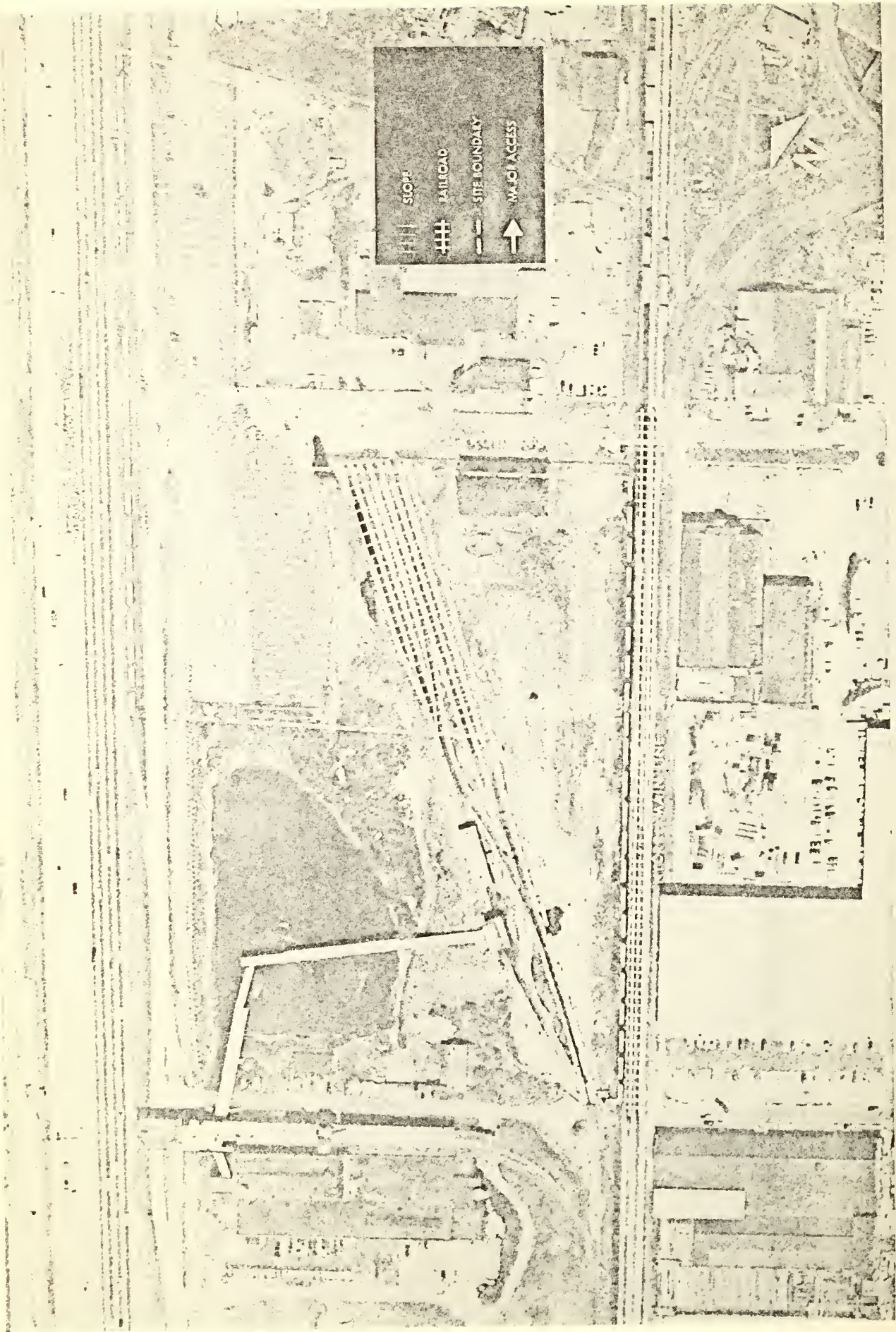
FOOD PROCESSING & DISTRIBUTION

SITE 'B' - GLADSTONE

1-46

EXHIBIT E34 CHARACTERISTICS - LAKESIDE SITE

- Located 5 minutes driving distance east of Downtown
 - Zoned for industrial use
 - Contains several firms in the machinery and fabricated metals industries
 - Adjacent to one of selected neighborhoods; in close proximity to three others
 - Site size 10 acres
 - Ownership, mostly in City of Cleveland, rest private
 - Access to I-90 within 5 minutes driving distance
 - Public transportation within 10 minutes walking distance
 - Rail spur runs through site
 - Soil conditions limit building height to 6-8 stories
- Although well located with relationship to Downtown, the immediate access to this site is less favorable than the other two because there is only one street serving it. Public transportation is not as favorably located relative to this site as for the others. However, this site faces the Memorial Shoreway (I-90) on the north and it slopes some 40 feet down in this direction. A prototype multi-level industrial building for the machinery and fabricated metals industries on this site would have full exposure to the Shoreway and would make a significant visual impact on the area.



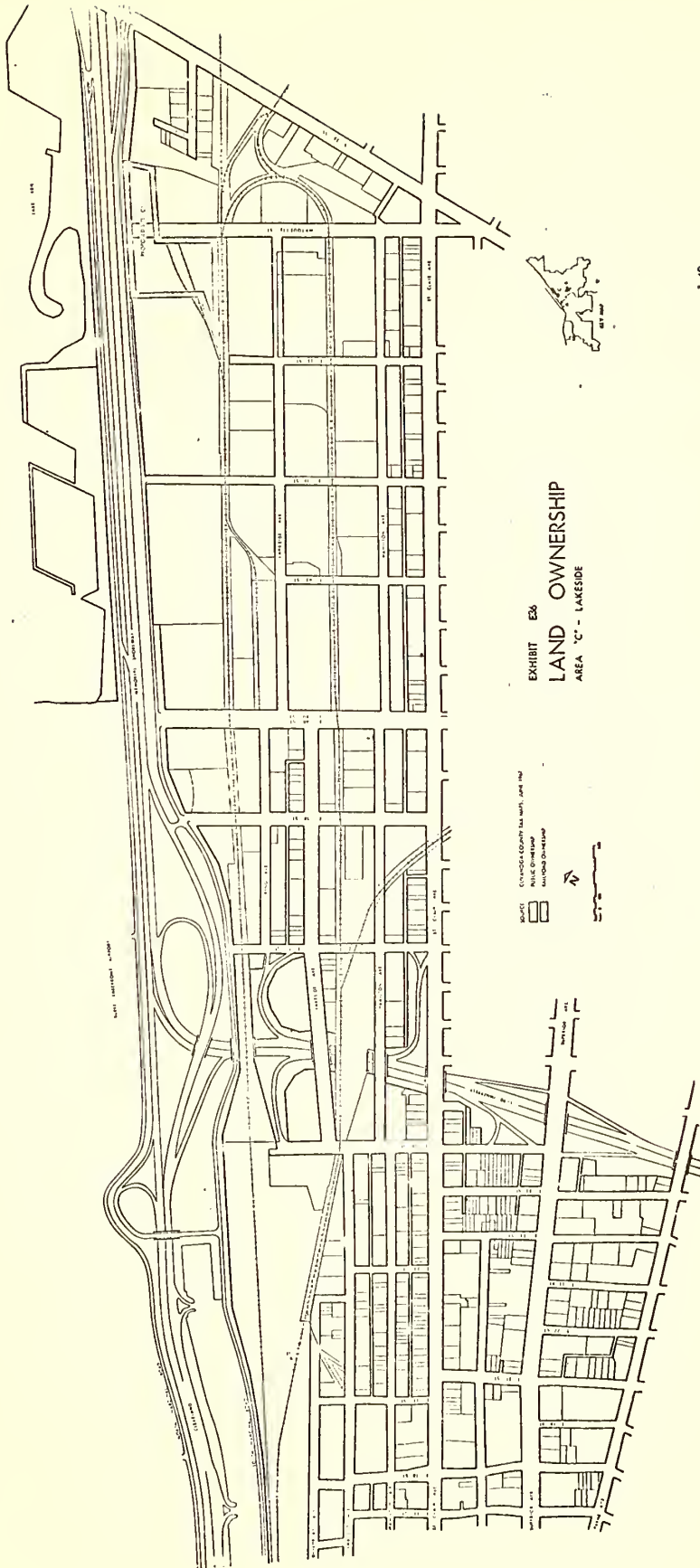


EXHIBIT E-36
LAND OWNERSHIP
AREA 'C' - LAKESIDE

CITY OF CHICAGO
 PUBLIC OWNERSHIP
 PRIVATE OWNERSHIP



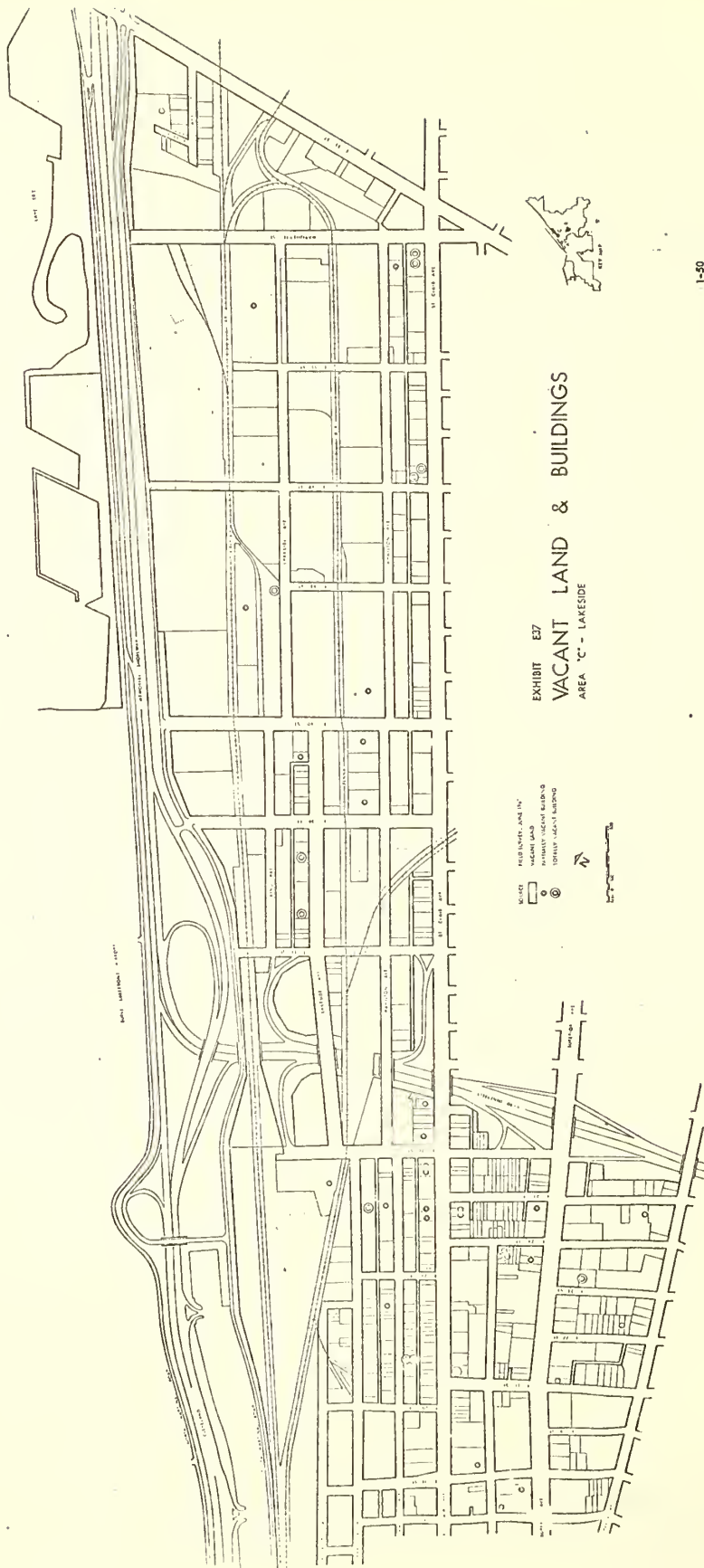


EXHIBIT E37 VACANT LAND & BUILDINGS AREA "C" - LAKESIDE

LEGEND
 [Symbol] RESIDENTIAL AND IND.
 [Symbol] COMMERCIAL
 [Symbol] INDUSTRIAL
 [Symbol] TOTAL VACANT BUILDING

EXHIBIT E38
LAKESIDE SITE BUILDING CONCEPT STUDY

SITE CHARACTERISTICS AND ANALYSIS: The site has a "Z" shape and is essentially flat except for a steep slope down to South Marginal Road, along the northern edge of the site. The elevation change is about 40 feet. Railroad tracks run along the southern edge of the site; a spur runs through the middle of the site. Major access is provided by Marquette Street along the eastern edge of the site and along South Marginal Road to the north. Soil conditions indicate the maximum building height would be about 6 to 8 stories.

USE: Machinery and fabricated metal products and related industries, and services including retail, wholesale and warehouse uses.

DESIGN CONCEPT: The building concept included three basic building elements: (1) a general manufacturing element parallel and above the Marginal Road; (2) a heavy manufacturing element immediately north of the rail spurs and connected to the general manufacturing element by a series of ramps; and (3) a parking deck south of the rail spurs connected to the other building elements by use of air rights over the rail tracks. The lower floor of all three elements would be for truck and rail shipping and receiving and warehouse space. Retail and service uses might be included on the first or ground level to serve building tenants and the surrounding area.

PARKING: Three levels of parking would be provided in the south element of the building complex. This location would be accessible from Marquette Street, which in turn connects to the Marginal Road and the Shoreway. Visitor parking would be below the general production building with direct access from the Marginal Road.

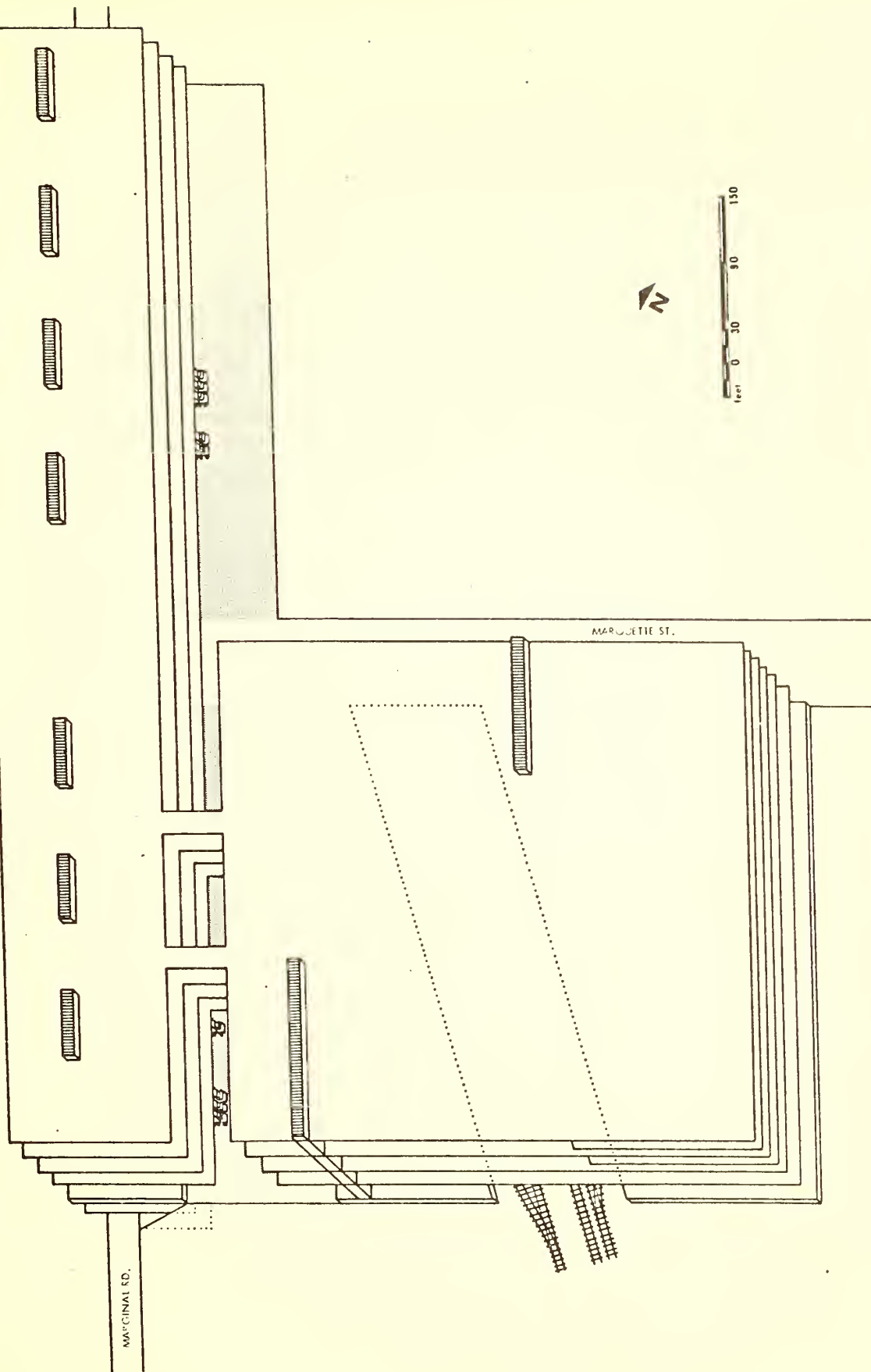
RAIL: The existing rail siding would remain and provide rail docking access to tenant warehouse space. Part of this space, as well as the building area located over the rail siding, could be assigned to production space for tenants who may require direct access to the rail docking area.

TRUCK SERVICE: Continuous truck docking areas would be provided between the general production and heavy manufacturing elements to serve both. This area is accessible from Marquette Street. Direct movement of goods between rail and truck would be possible on the south side of the truck area.

VERTICAL CIRCULATION: Vertical circulation cores located within the central areas of each of the major elements of the building provide access from tenant space to warehouse areas and rail-truck docks. The detailed size and arrangement of these cores would depend upon final tenant requirements.

EXHIBIT E39
BUILDING CONCEPT SUMMARY
LAKESIDE SITE

LAND AREA	10	acres
AMOUNT OF LAND REQUIRED		
Streets (air rights)	46,400	square feet
Other	389,200	square feet
Total	435,600	square feet
DEMOLITION REQUIRED		
Number of Buildings to be Demolished	1	
Total Size	10,400	square feet
NUMBER OF ENTRY DRIVES		
Auto	6	
Truck	2	
Total	8	
RAIL SERVICE		
Number of Sidings	2	
Car Capacity	12	
TRUCK SERVICE		
Truck Capacity	100	
Area Allocated	119,600	square feet
Number Floors with Direct Truck Service	1	
Area Per Level	115,000	square feet
PARKING (EMPLOYEE)		
Capacity	900	
Area Allocated	396,000	square feet
Number of Levels	4	
Area Per Level	99,000	square feet
BUILDING COVERAGE		
Area	342,400	square feet
Per Cent of Land Area	78	per cent
RENTAL SPACE		
Number of Floors	3 - 4	
Area Per Floor	243,400	square feet
Total Area	958,000	square feet



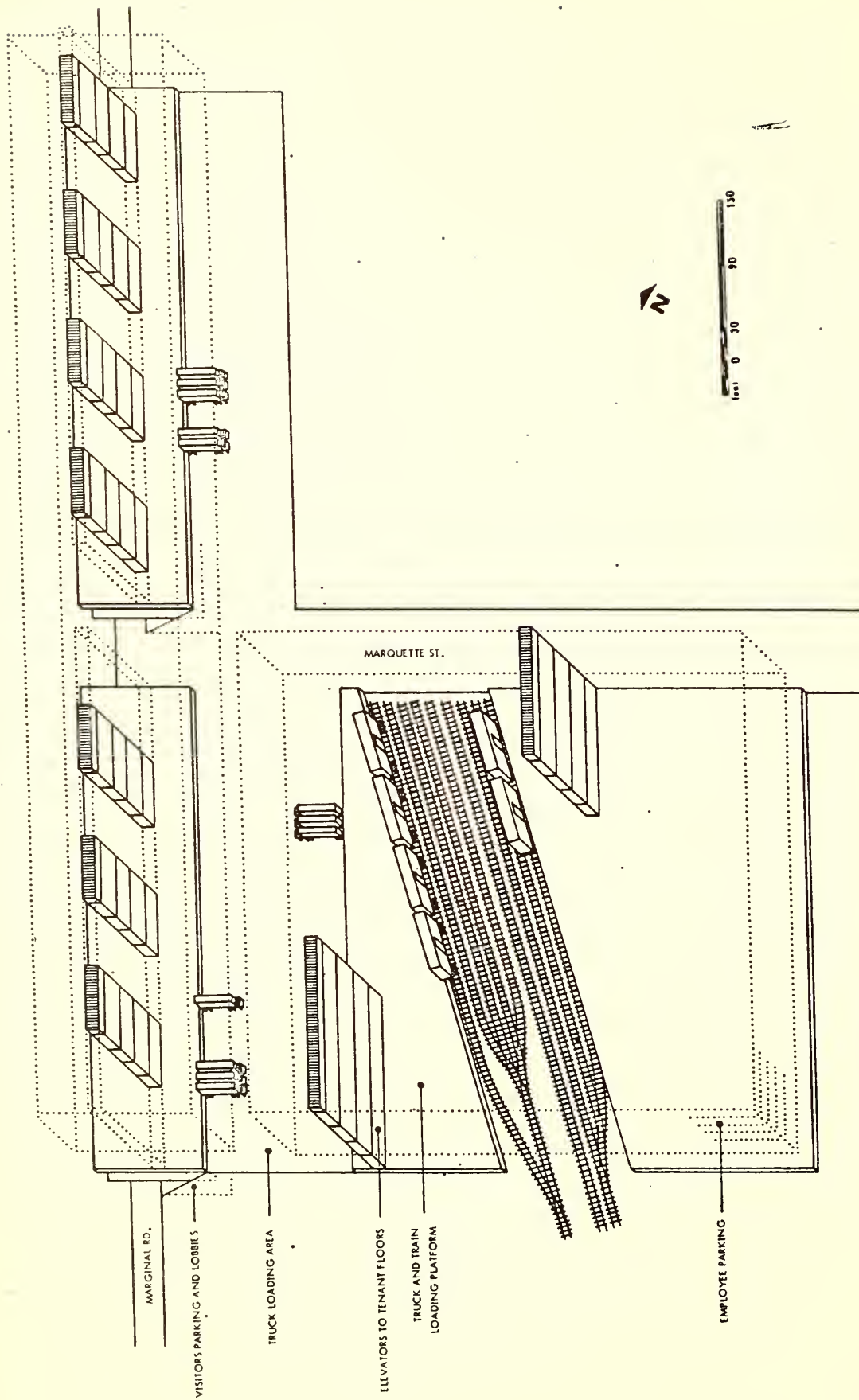
DRAWING 1
EXHIBIT E40

BUILDING CONCEPT

MANUFACTURING

METAL FABRICATED & MACHINERY

LAKESIDE



BUILDING CONCEPT
DRAWING 2
EXHIBIT E41

SITE 'C' - LAKESIDE
MACHINERY & FABRICATED METAL MANUFACTURING

EVALUATION OF DEVELOPER POTENTIAL

Findings Related to Objective 6

A preliminary analysis of methods of ownership and management was made in order to set the guidelines for the financial analysis and for discussion with developers, tenant subjects during the market test.

SOURCES OF FINANCING

Several possible alternatives for ownership and financing have been defined.

- Tenant Stockholder Corporation: Under this system, a group of tenants of the building could form a separate corporation to develop the project. They could provide the required funds by directly purchasing the land and making other necessary expenditures; by purchasing stock; by making loans; or by any combination of these methods. To the extent that this would require substantial capital funds, it did not represent a realistic possibility, since many of the potential tenants considered have limited financial resources. However, if the equity requirement is small or if a large tenant becomes involved, this type of a tenant stockholder corporation could be a possibility.
- Cleveland industry: Funds could be borrowed by a tenant stockholder corporation from Cleveland industry through long-term debentures. These presumably would have to be sold as a civic undertaking, but would have to be justified as an economic matter. Such an offering would be subject to the requirements of the Securities Exchange Commission (S.E.C.).
- Private investors: An offering of long-term debt, convertible long-term debt, or common stock could be made to private investors in the Cleveland area by a tenant stockholder corporation. This method would have the disadvantage that such a group would be unwilling to advance funds without, at least, the option to acquire a substantial equity interest. Or, a private developer or group of private investors might take on some portion of the development and provide its own equity funds, without the involvement of a tenant stockholder group. There appears to be a question as to whether such an offering would attract sufficient investor interest. Such an offering would also be subject to S.E.C. requirements and restrictions.

- Public offering: A public offering of stock or debentures could be made in the Cleveland area, on a civic basis. However, the underwriting and registration cost might run 15%; and there would be a serious risk of bad publicity if the persons purchasing at a public sale were later to suffer a financial loss. This type of offering would be faced with the same problems of marketability and S.E.C. control.
- Guaranteed bank borrowing: Under the foregoing alternatives, the funds could also be provided by a bank or other financial institution and guaranteed by one or more of the groups mentioned previously. Civic improvement aspects of this project might have appeal to local banking interests. However, there would be a problem of the banks providing long-term money (up to 20 years) and sufficient guarantees might be difficult to obtain.
- City of Cleveland: The City's ability to directly finance this type of project is limited by its financial resources, its prior commitments and public policy. Under the Federal Urban Renewal Law, it is proper for a local public agency to lease land in urban renewal areas rather than sell it. If otherwise feasible, this could eliminate the need to acquire the land; however, Cleveland has never done this. Since it is doubtful that the Gladstone urban renewal plan contemplates such a lease, the City might have to tie up some of its urban renewal funds allocated to other projects in order to do this. Other areas of participation by the City might be in providing the off-site improvements.
- County revenue bonds: The Greater Cleveland Growth Corporation is the designated Community Improvement Corporation for both the City and Cuyahoga County. Such a corporation may acquire property, and construct and equip buildings for sale or lease. It can also make loans through the issuance of County revenue bonds. Interest paid on such bonds is exempt from federal income tax, thus reducing the interest rate on borrowing. There is a precedent for this, since the County did issue such bonds for the construction of a private industrial plant, which local banks purchased. However, there is no commitment from the County Commissioner to issue such bonds and no evidence from local banks that such bonds would be an attractive investment for them.

DEVELOPMENT ALTERNATIVES

The proposed building concept would be, in essence, a multi-story industrial park. As a minimum, building management would be required to take care of maintenance, leasing and general management. The proposed central and common facilities would also fall under the supervision of the central building management. The material handling system, as conceived for Prototype Building One would involve some form of central management, either by a firm which specializes in material handling management or by the building's central management service. The overall building management could be provided by the building owners directly or by the use of a professional building management service.

A preliminary assumption was to treat this as a private development, with ownership assumed to be in one person or a small private group. Within this context, investigation could be made of construction cost, methods of financing and current industrial development trend in order to determine whether a multi-level industrial development would be profitable for a private developer.

Several private developers and representatives of railroads were contacted with respect to this project in order to determine the potential for the development of a multi-level building on the private market and to get their reaction to the project. Their reactions can be summarized as follows:

- Some potential for utilization of the proposed building appears to exist among industries which require a central city location.
- There are difficulties involved in a central city industrial development, because of complex procedures required for rezoning, parking expansion, and urban renewal, as compared to the relative cost of similar procedures in suburbs.
- Active participation by the City in supporting this project would encourage further industrial development in the City.
- Tenant incompatibility presents a potential problem, unless the building is planned for related industries which already tend to group.
- Many developers and railroads have extensive suburban holdings which they are promoting. Further, there is concern over the deterioration of the urban environment. Thus, they are hesitant to actively lead in supporting or developing this project.

On completion of the preliminary research and programming, it was concluded that the study should proceed to the next stage--in depth building programming and design. It was generally concluded that the direct impact on the City of Cleveland caused by the construction of one new industrial building would, of course, be limited. However, the long-term effect of the prototype design and the concept of centrally located multi-story facilities could be significant for Cleveland and serve as a model for similar developments in other cities. Thus, there appeared to be a basis for detailed analysis of the building's feasibility. The conclusions which formed the basis for this decision are summarized below:

EVALUATION OF EMPLOYMENT FACTORS

Conclusion to Objective 1

The basic impact of a new multi-level facility is viewed as being defensive, to retain existing employment opportunities in Cleveland. Manufacturing employment is a significant income producer in the central city, but is decreasing more rapidly than other types of employment. This trend is more pronounced in the selected neighborhoods of Cleveland. Since employment in general, and manufacturing employment in particular, is decreasing at a faster rate than the population is decreasing, part of the reason for job loss appears to be due to technological change, and part to a move out of industrial employers.

In order to maintain its industrial flexibility, Cleveland must develop suitable space for small and medium sized industrial firms. There is a need for industrial space in the inner city among firms which require a central location. The proposed project could provide a valuable source for the relocation of displaced firms, provided the rental rate is within their reach.

EVALUATION OF COMMUNITY SUPPORT

Conclusion to Objective 2

While there is general recognition of the City's industrial problems, the degree of importance given this problem varies with each sector of the business community. The nature and extent of an individual's business interests appears to affect his outlook toward Cleveland's industrial development.

Support for a multi-level industrial building from representative community leaders did exist but was of a tentative nature. They were interested in the feasibility study and its results. However, their backing for actual execution would depend upon:

- The economic feasibility of the project.
- The existence of backing by the City government.
- The existence and execution of an overall plan to improve the urban environment of Cleveland, making it more attractive to industries.
- The priority of this project must be established and coordinate with similar projects.

SELECTION OF INDUSTRIES

Conclusion to Objective 3

There exists a demand and need for industrial space within the central area of Cleveland. Specifically, this report has identified such a need in the foods, printing, fabricated metals, and machinery industries as being representative of Cleveland's present situation. Industrial operations in a multi-tenant building should be related in terms of locational needs and building requirements in order to realize maximum cost savings and building efficiencies from high density multi-tenant solutions. Thus, it appears that the best potential exists in developing a building to serve a particular type of industry rather than a broad range of industries.

Of the four industries which provide the greatest potential for continued utilization of inner city industrial facilities, all exhibit relatively strong interdependence and location patterns related to markets, suppliers or particular service requirements. The application of architectural program, site, building and planning requirements indicated that each site has potential for development for one of the industries. The three sites share certain common advantages; each is suited for a particular industrial group and offers potential for development. A comparative analysis of the Gladstone, Downtown and Lakeside sites is made in Exhibit E-42.

PRELIMINARY BUILDING PROGRAM

Conclusion to Objective 4

The general programming and planning criteria appeared to present standards which can be

achieved in a multi-level, multi-tenant building. Detailed program data for food-industry tenants remained to be developed in the prototype building design phase of this study. In addition, other areas were identified which would require further study.

- Site development factors:

Zoning restrictions and the urban renewal plan and standards for Gladstone as to parking building height, setbacks and street locations appear to require modification.

- Building design factors:

- a. Building code requirements, in some cases, are subject to reevaluation because of improved construction methods and industrial processes. This includes fire wall requirements, certain material specifications, and sprinkler requirements.
- b. The lack of contemporary research into vertical material handling and multi-level building design and technology presents limitations.
- c. More detailed soil analysis is necessary to establish soil bearing limitations.

- Financing and operational factors:

Detailed construction cost data is needed to determine rental rate and development costs.

SELECTION OF SITES

Conclusion to Objective 5

While a disproportionate weighing of any one factor could alter the complexion of the analysis, the Gladstone site appeared to offer the widest range of potential assets for the successful development of the proposed building. (See Exhibit E-42) In keeping with the overall objectives of this project, the Gladstone site has been recommended for use as the site for the prototype building study, with the food industry as the tenant subject, based on these key factors:

- Land is immediately available from one owner; there is flexibility for expansion of the site area through urban renewal.
- Land cost is most favorable among the three sites, at \$2.00 per square foot.
- There is opportunity to give impetus to an existing urban renewal project.
- The site is favorably located as to public transit providing easy access for inner city residents; it is also within walking distance of a large labor market.

- The site is in close proximity to the Model Cities area and to Cleveland's selected neighborhoods, and would tie in with existing economic redevelopment programs.
- The extent of functional obsolescence within many food industry facilities indicates a need for new space.
- The food industry exhibits more of an ability to capitalize upon common facilities such as cold storage and government inspection, and to utilize related services such as packaging and distribution.
- Potential for growth of the food industry seems possible.
- There is an opportunity to tie the proposed building into the existing complex of facilities in and around the Northern Ohio Food Terminal.
- Soil conditions were most advantageous of the three sites studied.

Certain limitations to this site and industry have also been discerned, within the context of this study:

- The area has an existing image of vandalism and blight; much of the urban renewal area has been in a partially cleared state over a period of years.
- A somewhat limited market exists within certain segments of the food industry.
- Certain of the firms which appear most likely to make use of the new facility are somewhat specialized in character.
- Scrap metal yards now exist in the area and may adversely affect the potential for quality development. Such uses are, however, difficult to relocate.

EVALUATION OF DEVELOPER POTENTIAL

Conclusion to Objective 6

Several possibilities for private development appeared to exist, including a tenant corporation, a private individual or group. Private developer interest exists but is of a tentative nature, since developers presently have suburban interests and are not sure of the marketability of a multi-level facility. There appeared to be sufficient developer interest to justify pursuing the line of investigating the feasibility of this project as a privately financed operation. Much would depend on the financial analysis of the building to be designed in the next phase of work, as well as the market test of the building. (See Chapter 3 and Appendix 3)

EXHIBIT E-42
COMPARATIVE SITE EVALUATION

	SITE A Downtown Printing	SITE B Gladstone Food	SITE C Lakeside Mach. -Metals
SITE OBJECTIVES			
Land Availability Status	-	x	-
Area for Expansion	-	x	x
Land Cost	x	x	-
Soil Factors	-	x	x
Expressway Access	x	x	x
Rail Access	x	x	x
Bus Access	x	x	x
Rapid Transit Access	x	x	-
"Walking Distance" Access	-	x	-
Support to Current Renewal Effort	-	x	-
Potential Tie to "Model Cities"	-	x	-
Image of Site for Prototype	x	-	x
INDUSTRIAL OBJECTIVES			
Industrial Need	x	x	x
Need for Common Facilities	x	x	-
Existing Complex of Related Activities	x	x	x
Growth Potential	x	x	x
Preliminary Tenant Interest	x	x	-
Potential Tenant Market	x	x	x
Potential Impact on Community	x	x	x

- x Indicates objective is substantially fulfilled
- Indicates objective may be only partially fulfilled

CHAPTER 2

DESIGN DEVELOPMENT

PROTOTYPE BUILDING ONE - FOOD INDUSTRY

A. OBJECTIVES

B. STUDY METHODS AND FINDINGS

1. IDENTIFICATION OF TENANTS
2. SITE ANALYSIS AND PLAN
3. SOIL ANALYSIS
4. STRUCTURAL SYSTEM ANALYSIS
5. MECHANICAL AND ELECTRICAL SYSTEMS ANALYSIS
6. MATERIAL HANDLING SYSTEM ANALYSIS
7. BUILDING DESIGN
8. CONSTRUCTION COST ANALYSIS

C. CONCLUSIONS

achieved in a multi-level, multi-tenant building. Detailed program data for food industry tenants remained to be developed in the prototype building design phase of this study. In addition, other areas were identified which would require further study.

- Site development factors:

Zoning restrictions and the urban renewal plan and standards for Gladstone as to parking building height, setbacks and street locations appear to require modification.

- Building design factors:

- a. Building code requirements, in some cases, are subject to reevaluation because of improved construction methods and industrial processes. This includes fire wall requirements, certain material specifications, and sprinkler requirements.
- b. The lack of contemporary research into vertical material handling and multi-level building design and technology presents limitations.
- c. More detailed soil analysis is necessary to establish soil bearing limitations.

- Financing and operational factors:

Detailed construction cost data is needed to determine rental rate and development costs.

SELECTION OF SITES

Conclusion to Objective 5

While a disproportionate weighing of any one factor could alter the complexion of the analysis, the Gladstone site appeared to offer the widest range of potential assets for the successful development of the proposed building. (See Exhibit E-42) In keeping with the overall objectives of this project, the Gladstone site has been recommended for use as the site for the prototype building study, with the food industry as the tenant subject, based on these key factors:

- Land is immediately available from one owner; there is flexibility for expansion of the site area through urban renewal.
- Land cost is most favorable among the three sites, at \$2.00 per square foot.
- There is opportunity to give impetus to an existing urban renewal project.
- The site is favorably located as to public transit providing easy access for inner city residents; it is also within walking distance of a large labor market.

- The site is in close proximity to the Model Cities area and to Cleveland's selected neighborhoods, and would tie in with existing economic redevelopment programs.
- The extent of functional obsolescence within many food industry facilities indicates a need for new space.
- The food industry exhibits more of an ability to capitalize upon common facilities such as cold storage and government inspection, and to utilize related services such as packaging and distribution.
- Potential for growth of the food industry seems possible.
- There is an opportunity to tie the proposed building into the existing complex of facilities in and around the Northern Ohio Food Terminal.
- Soil conditions were most advantageous of the three sites studied.

Certain limitations to this site and industry have also been discerned, within the context of this study:

- The area has an existing image of vandalism and blight; much of the urban renewal area has been in a partially cleared state over a period of years.
- A somewhat limited market exists within certain segments of the food industry.
- Certain of the firms which appear most likely to make use of the new facility are somewhat specialized in character.
- Scrap metal yards now exist in the area and may adversely affect the potential for quality development. Such uses are, however, difficult to relocate.

EVALUATION OF DEVELOPER POTENTIAL

Conclusion to Objective 6

Several possibilities for private development appeared to exist, including a tenant corporation, a private individual or group. Private developer interest exists but is of a tentative nature, since developers presently have suburban interests and are not sure of the marketability of a multi-level facility. There appeared to be sufficient developer interest to justify pursuing the line of investigating the feasibility of this project as a privately financed operation. Much would depend on the financial analysis of the building to be designed in the next phase of work, as well as the market test of the building. (See Chapter 3 and Appendix 3)

EXHIBIT E-42
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Bus Access	x	x	x
Rapid Transit Access	x	x	-
"Walking Distance" Access	-	x	-
Support to Current Renewal Effort	-	x	-
Potential Tie to "Model Cities"	-	x	-
Image of Site for Prototype	x	-	x
INDUSTRIAL OBJECTIVES			
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Existing Complex of Related Activities	x	x	x
Growth Potential	x	x	x
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Potential Tenant Market	x	x	x
Potential Impact on Community	x	x	x

- x Indicates objective is substantially fulfilled
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CHAPTER 2

DESIGN DEVELOPMENT

PROTOTYPE BUILDING ONE - FOOD INDUSTRY

A. OBJECTIVES

B. STUDY METHODS AND FINDINGS

1. IDENTIFICATION OF TENANTS
2. SITE ANALYSIS AND PLAN
3. SOIL ANALYSIS
4. STRUCTURAL SYSTEM ANALYSIS
5. MECHANICAL AND ELECTRICAL SYSTEMS ANALYSIS
6. MATERIAL HANDLING SYSTEM ANALYSIS
7. BUILDING DESIGN
8. CONSTRUCTION COST ANALYSIS

C. CONCLUSIONS

Based on the findings in the preliminary research and program phase of this study (see Chapter 1 and Appendix 1), the determination was made to continue this study by developing detailed design drawings and cost data.

The primary objective was to design a multi-level, multi-tenant industrial building for food industry tenants on the selected site in Gladstone. From this, certain secondary objectives evolved which are as follows:

1. To define the food industry tenant subjects in order to develop a more precise building program.
2. To develop a plan for the site which includes land use, circulation, linkage with the surrounding area, land acquisition and thoroughfare planning.
3. To develop a central system of internal material handling which would meet the needs of the tenants, with operation by a central management service.
4. To ascertain the soil characteristics as a basis for determining the practical limitations of the site.
5. To develop mechanical and electrical systems which will efficiently meet building and tenant needs.
6. To determine the structural system which is most economical and adaptable to multi-level construction.
7. To design a multi-level industrial building which meets requirements of the tenants, and the criteria set forth in the building program.
8. To develop the construction costs for this building as a basis for financial analysis.

The methods of approach used in the design of Prototype One involved work by specialized consultants in order to complete the building program and to define building systems best suited for a multi-level structure. This represented a continuation of the research done in the preliminary phase of the project. The set of criteria for the building and the site were based on the needs of the tenant, the functions to be performed in the building, the capacity of the site and code requirements. The sources of data related to each objective can be summarized as follows:

1. A hypothetical group of tenant subjects from the food industry was identified by Gould & Associates and Ernst & Ernst. This permitted a more precise definition of tenant needs.
2. A detailed city planning analysis of the site and its surrounding area was made by Gould & Associates, involving field survey, mapping and data gathering from various city agencies.
3. The material handling requirements for rail, truck and internal circulation were developed by Ernst & Ernst based on the needs of the hypothetical tenant-subject group.
4. Soil borings of the site were made by David V. Lewin, engineering counselor, to determine the physical nature and limitations of the site.
5. Mechanical and electrical requirements for food industry tenants, as adapted to a multi-level building, were defined by John E. Flynn, building systems consultant.
6. Various structural systems were analyzed by R. M. Gensert Associates, structural engineer, to define the one best suited for multi-level construction.
7. The building program and final design were executed by Gould & Associates.
8. Construction costs were estimated by Turner Construction Company, based on a projection of 1969 and 1970 construction costs.

IDENTIFICATION OF TENANTS

Findings Related to Objective 1

Based on the evaluation of representative industries in Cleveland, the food industry was established as the use of Prototype Building One. It was then necessary to determine the sub-industries which would be most appropriate as tenants in order to have a more precise definition of tenant needs for the building program. Food processors were initially selected as the prime group of tenant prospects for these reasons:

- They potentially have more ability to pay higher rents because there is value added to the food product.
- Their turnover of material would be less frequent.
- Their shipping and receiving would be less susceptible to high peaking factors.

A list of food operations which could function in a multi-level building was compiled based on these factors:

- Present need for new industrial space.
- Growth potential of the industrial group.
- Prevalence of the industry in Cleveland.
- Size, as found in the Directory of Ohio Manufacturers.
- Ability to utilize and adapt to space in a multi-level structure.
- Similarity of material handling requirements.

From this large list, six groups of processes were determined as being most appropriate. An approximation was made as to the percentage of space each group would occupy in the Prototype Building according to the actual business profile in Cleveland.

- Group 1 - meat and fish, 20%
- Group 2 - sausage, 15%
- Group 3 - vending and catering, 25%
- Group 4 - frozen products, 10%
- Group 5 - snack foods, 15%
- Group 6 - prepared foods, 15%

This grouping and space allocation became the basis for the material handling study as well as the selection of interviewees for the market analysis.

SITE ANALYSIS AND PLAN

Findings Related to Objective 2

The City's plan for the Gladstone area calls for its development as an industrial area, making it appropriate as the site for a multi-level industrial building. Much of the area is already under City ownership and has been cleared for development.

A system for staged development was defined because of market considerations and building size. This system would permit future expansion of the development in accordance with the demand for industrial space. Prototype Building One would be the first of four stages (see Exhibit E7, this chapter) with each subsequent stage consisting of a similar facility. The eastern portion of the site was selected as the location for Prototype One, placing it in proximity to the Cleveland Board of Education Woodland Job Center. This would provide for interaction between the two facilities, with the Woodland Job Center being a potential labor source and the food industry firms participating in the training program.

A detailed planning analysis of the area was made through field survey, research into the Gladstone Area Urban Renewal Plan and related economic and redevelopment programs, and discussions with various departments of the City government. The detailed findings are set out in Appendix 2, Section E, and are summarized in the drawings which follow:

Exhibit E1 General Land Use Structure

Exhibit E2 Community Programs

Exhibit E3 Road and Rail Access

Exhibit E4 Public Transportation

Exhibit E5 Access Analysis

Exhibit E6 Site Analysis

In evaluating the building and the site within the context of the area, certain street improvements were proposed to serve Prototype Building One and the Gladstone area. By making these improvements at an early stage, the City would derive a cost savings and, at the same time, provide a stimulus for further development of the area.

The suggested street improvements include the widening of Woodland Avenue and East 40th Street; a new depressed street with a one-way traffic movement would be located to the south of the proposed building. The access ramps to the new street would be in East 40th Street and the exit ramp would be just to the west of East 51st Street. All of the ramping and the depressed street have been located in new or widened street rights-of-way.

Access to the site would be separate for pedestrian and vehicular traffic. Pedestrians would enter a plaza from Woodland Avenue and from this, enter the building. Automobile access would be from Woodland Avenue into a multi-level parking garage. Truck access would be from the new depressed road into the building levels designated for truck holding and docking. Rail access would be provided on two enclosed sidings which would serve the entire facility. Common docking and warehouse space would be adjacent to the sidings.

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

GENERAL LAND
USE STRUCTURE

- MAJOR BUSINESS CORRIDOR AND
CENTRAL BUSINESS DISTRICT
- PROPOSED INDUSTRIAL LAND
ALONG RAILROAD LINES
- HEAVY INDUSTRY ALONG
THE RIVER
- RESIDENTIAL ENCLAVE
- GLASSBORO URBAN RENEWAL
BOUNDARY
- PREWAYS
- MAJOR THOROUGHFARES

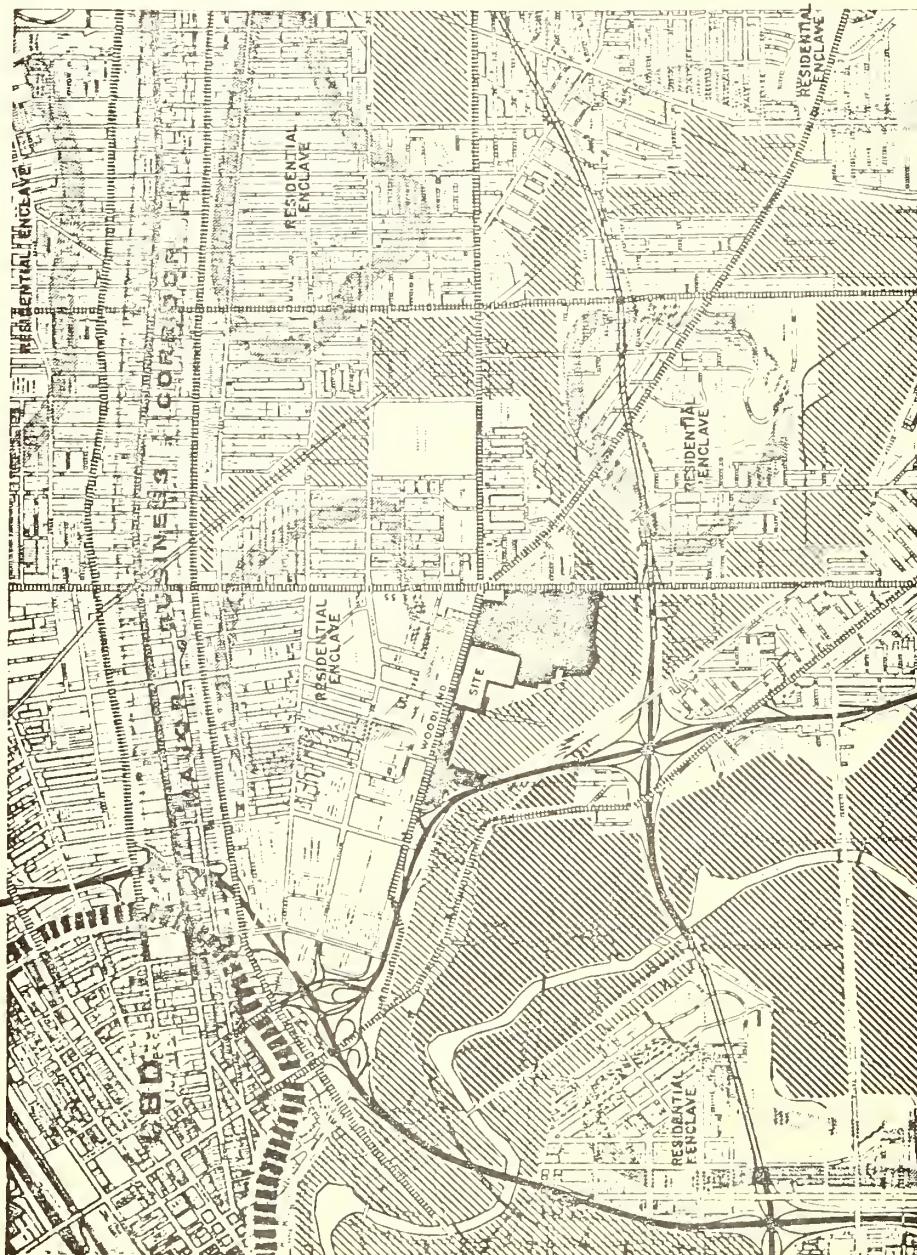
SOURCE: C.C.P.C. BOUNDARY MAP



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T/A PROJECT NUMBER: 03-6-09056

DATE: 11/15/70

EXHIBIT E1



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

COMMUNITY PROGRAMS

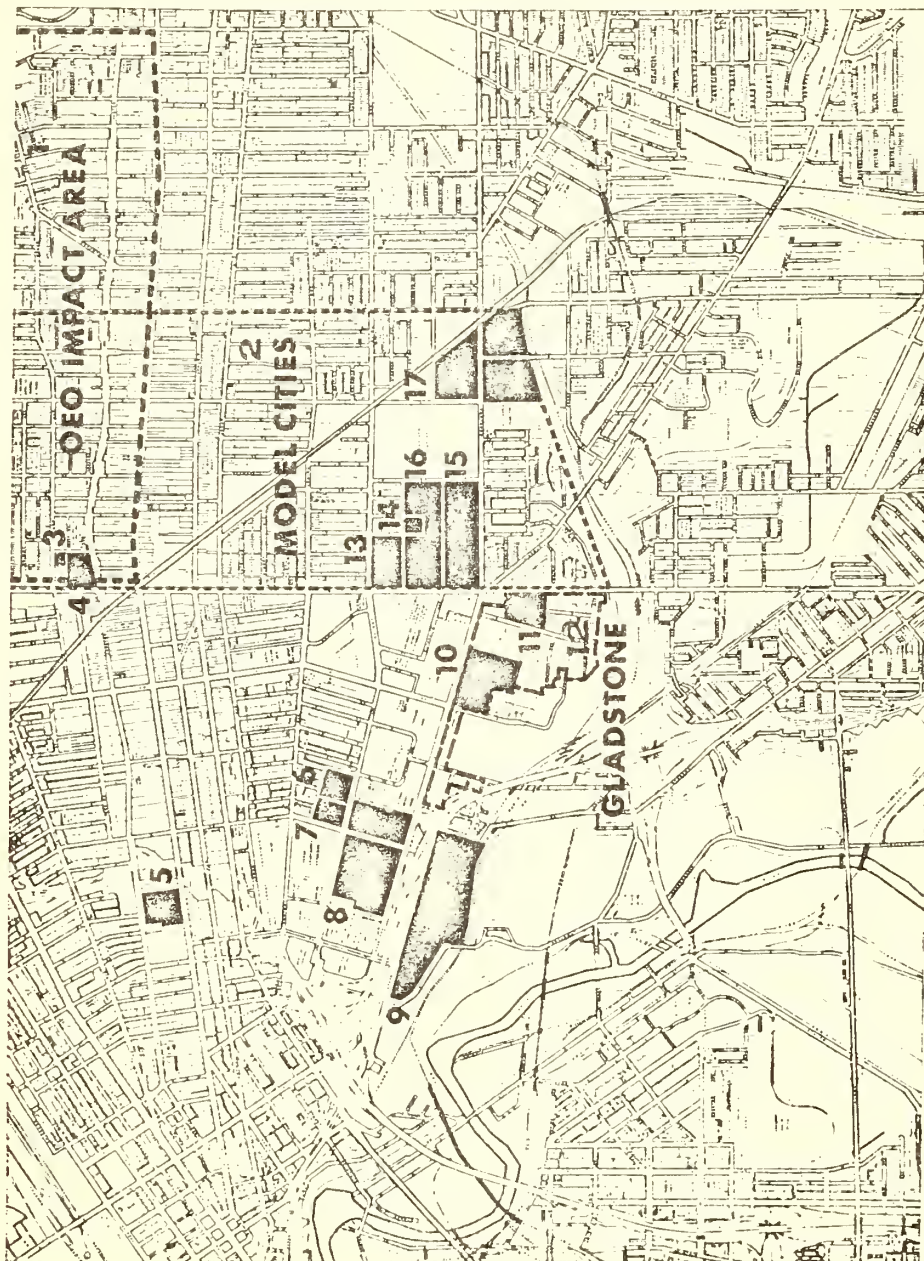
- ◆ NEW ◆ COMMITTED ○ PROPOSED
- 1. - OFFICE OF ECONOMIC OPPORTUNITY IMPACT AREA
- 2. - MODEL CITIES PROGRAM
- 3. - SALVATION ARMY COMMUNITY CENTER
- 4. - WALSON PUBLIC HOUSING PROJECT
- 5. - CLEVELAND STATE UNIVERSITY
- 6. - METZGERAUM COUNTY CHILDREN'S HOME
- 7. - CLEVELAND COLLEGE
- 8. - CLEVELAND VOCATIONAL SCHOOL
- 9. - POST OFFICE REGIONAL MAIL DISTRIBUTION CENTER
- 10. - ECONOMIC DEVELOPMENT ADMINISTRATION
- 11. - INDUSTRIAL BUILDING STUDY
- 12. - COOK COFFEE COMPANY MEAT PROCESSING PLANT
- 13. - GLADSTONE URBAN REHABIL PROJECT
- 14. - EAST TECH HIGH SCHOOL
- 15. - ONE ELEMENTARY SCHOOL
- 16. - ONE PARK DEVELOPMENT - PHASE 1
- 17. - ONE PARK DEVELOPMENT - PHASE 2
- 18. - ONE WOODLAND URBAN REHABIL PROJECT



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100 SERIES 10 77
DATE 8/24 1968

EXHIBIT E2

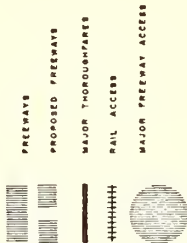


PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

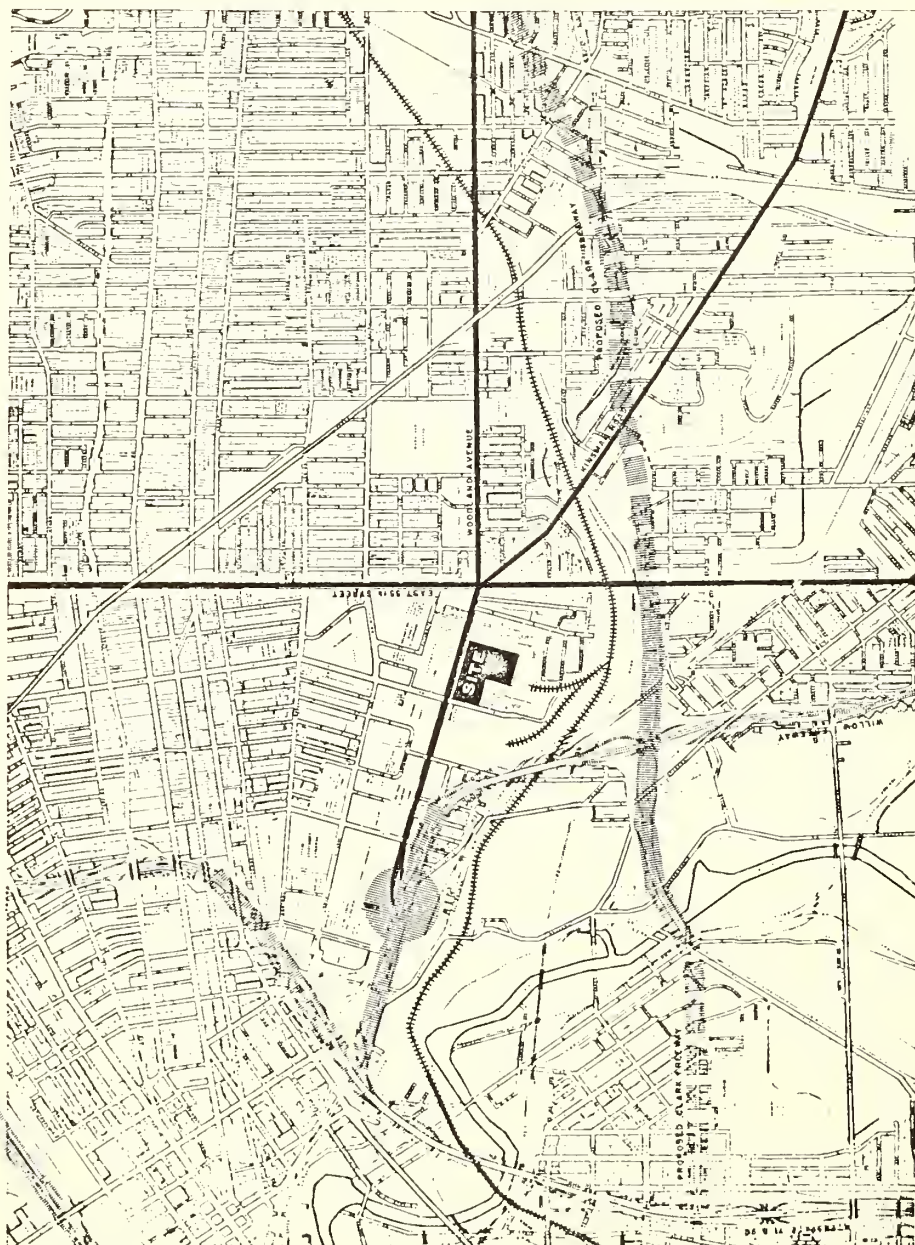
ROAD AND RAIL ACCESS



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OF THE U.S. DEPARTMENT OF COMMERCE
T.A. PROJECT NUMBER : 03-6-09056

DATE: 7-1-66
BY: [Signature]

EXHIBIT E3



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

PUBLIC TRANSPORTATION

- *** RAPID TRANSIT ROUTE
- 1 BUS ROUTE
- 2 BUS ROUTE
- 3 BUS ROUTE
- 4 BUS ROUTE
- 5 BUS ROUTE
- MORE THAN THREE BUS ROUTES

RAPID TRANSIT ROUTES

CLEVELAND & SHAKER LINES

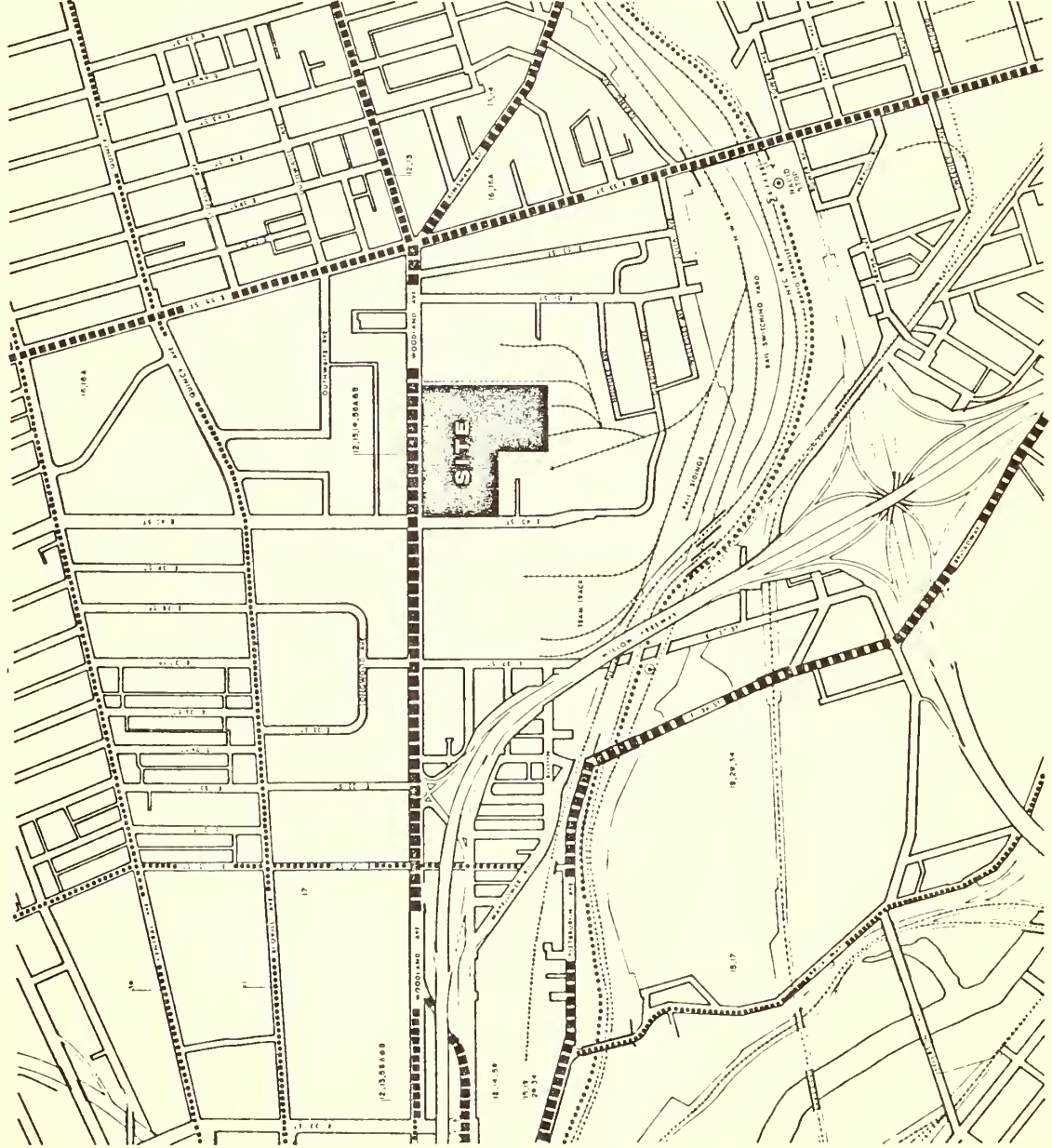
BUS EXPRESS ROUTES

- EE GARFIELD EXPRESS
- SE MILES EXPRESS
- SA HARVARD EXPRESS
- SEB KIRKMAN EXPRESS

BUS LOCAL ROUTES

- 11 SCOVILL
- 12 WOODLAND
- 13 UNIVERSITY
- 14 UNION
- 15 EAST 25th STREET
- 16A EAST 25th STREET
- 17 EAST 25th STREET
- 18 BROADWAY
- 23 CENTRAL

SOURCE: CLEVELAND TRANSIT SYSTEM 1958



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DATE: 7/26/64
EXHIBIT E4

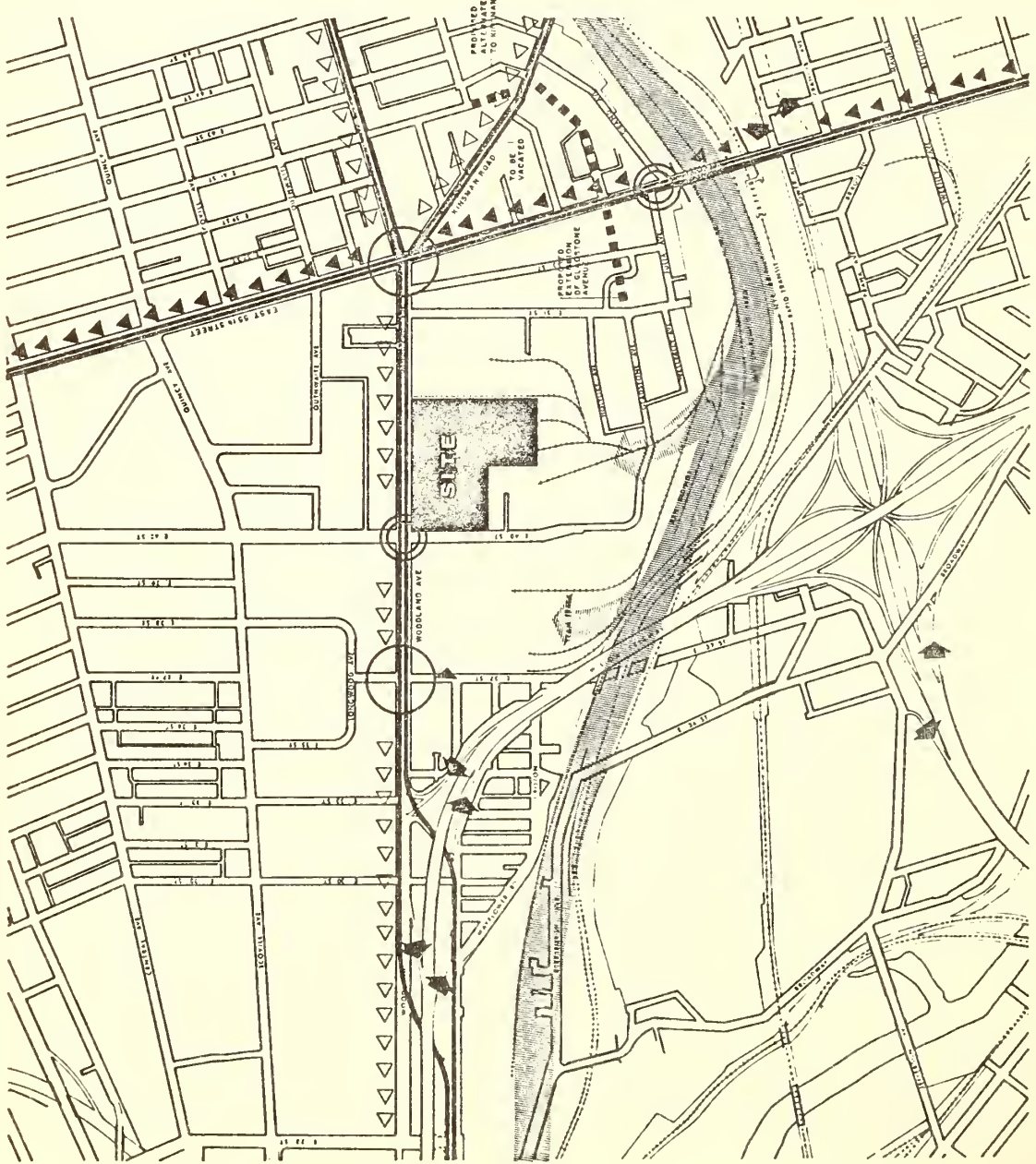
PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY
PROTOTYPE ONE
ACCESS ANALYSIS



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 T/A PROJECT NUMBER : 03-6-09056

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 DATE: 10/10/68
 EXHIBIT 5

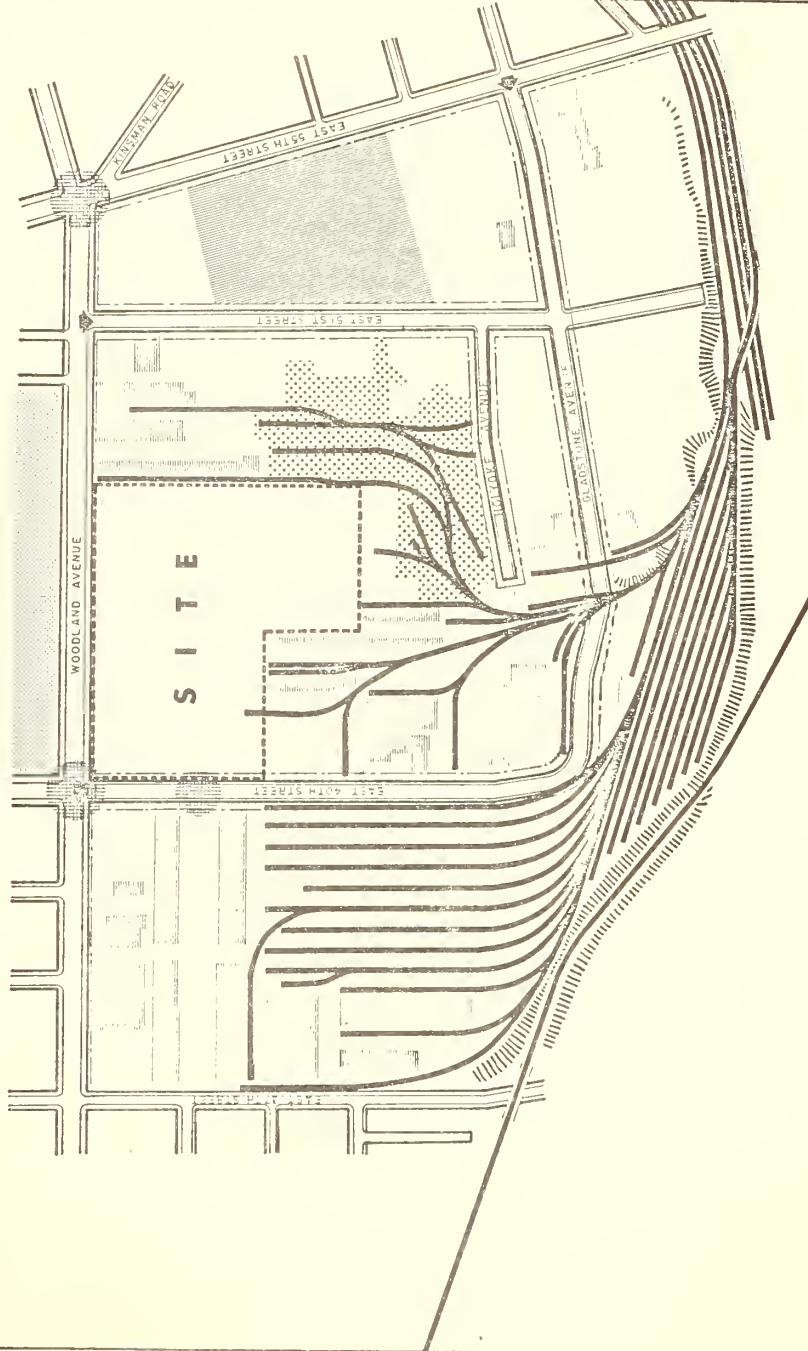


PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

SITE ANALYSIS



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EXHIBIT E6

SOIL ANALYSIS

Findings Related to Objective 3

Conditions indicate that soil bearing pressures in the order of 3,000 to 4,500 lbs. per square foot may be sustained within the sand strata. A combined or raft type of system could be considered, depending on the distribution and magnitude of the loads. This type of system may also offer a method of economically dealing with the possibility of hydrostatic uplift on the lowest level floor slab.

Caissons are not indicated due to the absence of any high bearing capacity stratum within reasonable depths. The depth to rock makes the use of end bearing piles prohibitive. Friction piles may offer a means of supporting high load concentrations but present serious problems in maintaining total and differential settlements within tolerable limits. Their use was not recommended for this application. The detailed procedure and findings of the soil analysis are given in Appendix 2, Section A.

STRUCTURAL SYSTEM ANALYSIS

Findings Related to Objective 4

Precast concrete, steel frame and poured-in-place reinforced concrete systems were evaluated as to cost and suitability for possible use in the prototype multi-level building. The structural steel frame system has been eliminated because of the cost of fireproofing, load bearing capability and problems of vibrations.

Precast concrete was determined to be inappropriate because of difficulties in providing floor elevation changes, problems in stability of a high rise building, the difficulty of achieving distribution of concentrated floor loads, and the problem of adding to the height and volume of the building in order to meet mechanical requirements.

Separate structural analysis was made of the processing levels and the material distribution areas. For processing levels, a 30'0" x 30'0" bay was established as being most flexible for a variety of tenant needs. Because of the need for flexibility and food industry mechanical requirements, a continuous horizontal duct and pipe chase has to be provided, necessitating a split beam and column structural system in certain areas. Therefore, a one way joist and beam system was analyzed. Mechanical ducts and piping may be placed between beams and the space covered by a panel attached to the bottom of the beams.

The material distribution areas require a structural design to support heavy live and heavy concentrated loads. A slab-beam girder framing system was analyzed. Different bay sizes are required to provide adequate maneuvering space for the truck driveways and docking areas. The three sizes analyzed in detail were 30'0" x 30'0", 30'0" x 60'0", and 60'0" x 60'0".

The detailed procedure and findings of the structural system analysis are given in Appendix 2, Section B.

MECHANICAL AND ELECTRICAL SYSTEMS ANALYSIS

Findings Related to Objective 5

In order to minimize the tendency toward functional obsolescence, it was determined that the building design would provide space arrangement concepts within which future distribution networks could easily be installed by individual tenants to meet their specific needs. Linkage between the building and major utility service outlets would be by a system of service troughs or tunnels. Within the building, there would be one or more central service distribution centers to serve as ending and starting points for certain services. From these distribution centers, a network of horizontal and vertical service ducts would distribute throughout the building. A split column and beam structural system would be used to provide space for these service ducts. This would allow space for future changes and maintenance with minimal disruption. Each service would be capped at each floor. From that point, it would be the responsibility of each tenant to install and maintain his own services.

The detailed procedure and findings of the mechanical and electrical systems analysis are given in Appendix 2, Section C.

MATERIAL HANDLING SYSTEM ANALYSIS

Findings Related to Objective 6

The most efficient rail facilities would be two tracks, each having direct access to a loading platform. The number of truck docks was projected as one for every 5500 square feet of useable building space; an additional holding area, located away from the docking area, should have a capacity of about double the number of dock spaces.

In analyzing the internal material handling system, several mechanized and automated systems were evaluated as to speed of transporting materials and operating costs. Automated systems such as conveyors, chain-veyors, monorails, etc. were investigated and eliminated because of their low speed, low volume of pounds transported, high maintenance cost, and limited flexibility.

The recommended internal material handling system is a combination of industrial fork lift trucks with standard wood pallets and high speed (300 feet per minute) high volume (6 ton or 4 pallet capacity) industrial freight elevators. This would best fulfill the requirements of a multi-level industrial building, having a large volume flow of commodities which require flexible rapid horizontal transportation and high speed, economical vertical movement.

The detailed procedure and findings of the material handling study are given in Appendix 2, Section D.

BUILDING DESIGN

Findings Related to Objective 7

The building design evolved as an answer to the criteria set out in the building program. The sources of data for this were:

- The research carried out during the early phase of the project in which the tenant industry and site were defined. (See Chapter 1, Appendix 1.)
- The work of consultants, as described in previous sections of this chapter, which give further definition to the building program.
- The building code, zoning ordinances, and Gladstone Urban Renewal plan. (See Appendix 2, Section E.)

The building program requirements and the design solution are given in Appendix 2, Section E, and are summarized below.

A preliminary test of the building program was carried out through a series of modular studies. These involved a two dimensional statement of the building program and provided a visual method of organizing the individual parts of the site, building, and tenant.

- The tenant module was used to establish the minimum self-contained work space which could be multiplied within the structural system to provide larger tenant spaces. The tenant module consisted of three major functions: administration, production, and storage.
- The building module was used to establish a workable solution to the individual functional requirements (truck docks, vertical cores, etc.) as well as the overall relationship of all of the individual parts.
- The site module set the workable pattern and relationship for the major elements of processing, commercial, service, and parking spaces as well as on-site pedestrian and vehicular circulation. It provided a means of uniformly coordinating the site plan with the building design.

The actual design of the Prototype Building One evolved through a process of formulating design alternatives and evaluating these against the building program. This involved not merely the selection of the alternative which best met the program, but incorporation of the advantages of the different alternatives into the final design concept. A summary of the design concept is given below and illustrated in Exhibits E7 through E20.

BUILDING DESCRIPTION

The total facility contains approximately 1,090,000 square feet of space. Of the total area, 35% would be rentable floor space for industrial and commercial use and the balance would be for building service, material handling and car parking. (See Exhibit E20.) Of the 380,566 square feet which are rentable, 84% is used as warehouse and processing space, housed in a processing tower. The remaining rentable area is designated for office, retail and restaurant facilities.

The automobile parking facility consists of three levels of covered parking and one level of rooftop parking, for a total of 495 parking spaces. This does not meet the zoning requirements because it was believed that many employees would walk or use public transportation. Each level of parking would have direct pedestrian access to the processing tower. In addition, levels 3 and 4 would have access to the processing tower for light trucks. These trucks could circulate through the two processing levels for direct loading and unloading, providing an ideal situation for catering and vending operations.

At the main entrance to the facility, a concrete canopy would extend 30 feet from the building. A vestibule would lead into the main entrance lobby, where there would be access to four passenger elevators which would serve the processing tower. Adjacent would be the entrance and lobby for the office structure, with two additional passenger elevators for office personnel and visitors.

The processing tower consists of 13 levels, two below grade and eleven above grade.

- The two sub-grade levels would be for truck holding and docking, with trucks entering the first level below grade, where holding space is located, then going to the level below where 54 docking spaces would be located. The dock area would be 33,880 square feet and would be used by all trucks for all tenants. The material handling elevator core would be in the center, from which all material would be distributed throughout the building. There would also be minimal area for warehouse and building storage space.
- Level 1 would provide lobby-reception area space, commercial and restaurant area, rail docks and warehouse, and access to automobile parking.
- Level 2 would provide office and cafeteria space and access to car parking.
- Levels 3 and 4 would provide office and processing space and access for light trucks from the parking garage, and access to car parking.
- Levels 5 through 10 would each provide processing space.
- Level 11 would be the mechanical equipment penthouse.

STRUCTURAL SYSTEM

Building construction would be poured-in-place, reinforced concrete at all levels. Ceiling heights would vary with use; office and commercial space, 9'0", processing levels, 12'0", material distribution levels, 14'6". (See Appendix 2, Sections B and E.)

MECHANICAL AND ELECTRICAL SYSTEMS

Utilities and services would be provided to access points within the building. Each tenant would be responsible for bringing the utilities and services he needs from these access points to his own space. All such tenant installations would have to be executed to building

standards and be approved by the building owner.

Generally, plumbing lines would be brought to each floor. This includes hot and cold water, storm water stacks, and steam. Fluid waste risers would be brought to each floor from which lines could be run to tenant space; dry waste would be collected at each floor through a separate shaft, for incineration. Gas service, electricity and power, and telephone service would be brought to each floor. For purposes of environmental control, two fan rooms would be located on each floor. One half of each would be used for basic environmental equipment (air handling and fan coil devices); the other half for additional processing systems that may be needed by tenants. Air distribution from the fan room would be by a supply duct system, with each tenant responsible for installing his own ducting and variable volume air diffusers. (See Appendix 2, Sections C and E.)

MATERIAL HANDLING SYSTEM

The material handling system would consist of high speed elevators and fork lift trucks utilizing standard wood pallets. A central management service would operate the material handling system, including scheduling the docking of all trucks, loading and unloading of train cars, and delivery of material to and from tenant floors.

There would be immediate access to the high speed freight elevators from the truck docks and the train loading areas. Of the nine freight elevators, eight would each serve only one processing level (3 through 10) plus the sub-levels and ground level. The remaining elevator would serve all floors for emergency or overload use. Freight elevators would be 8'6" x 10' x 10' high, with a 10,000 pound capacity. (See Appendix 2, Sections D and E.)

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

SITE PLAN

HIGH RISE - STAGE I
LOW RISE - STAGE I
NEW DEPRESSED STREET - STAGE I



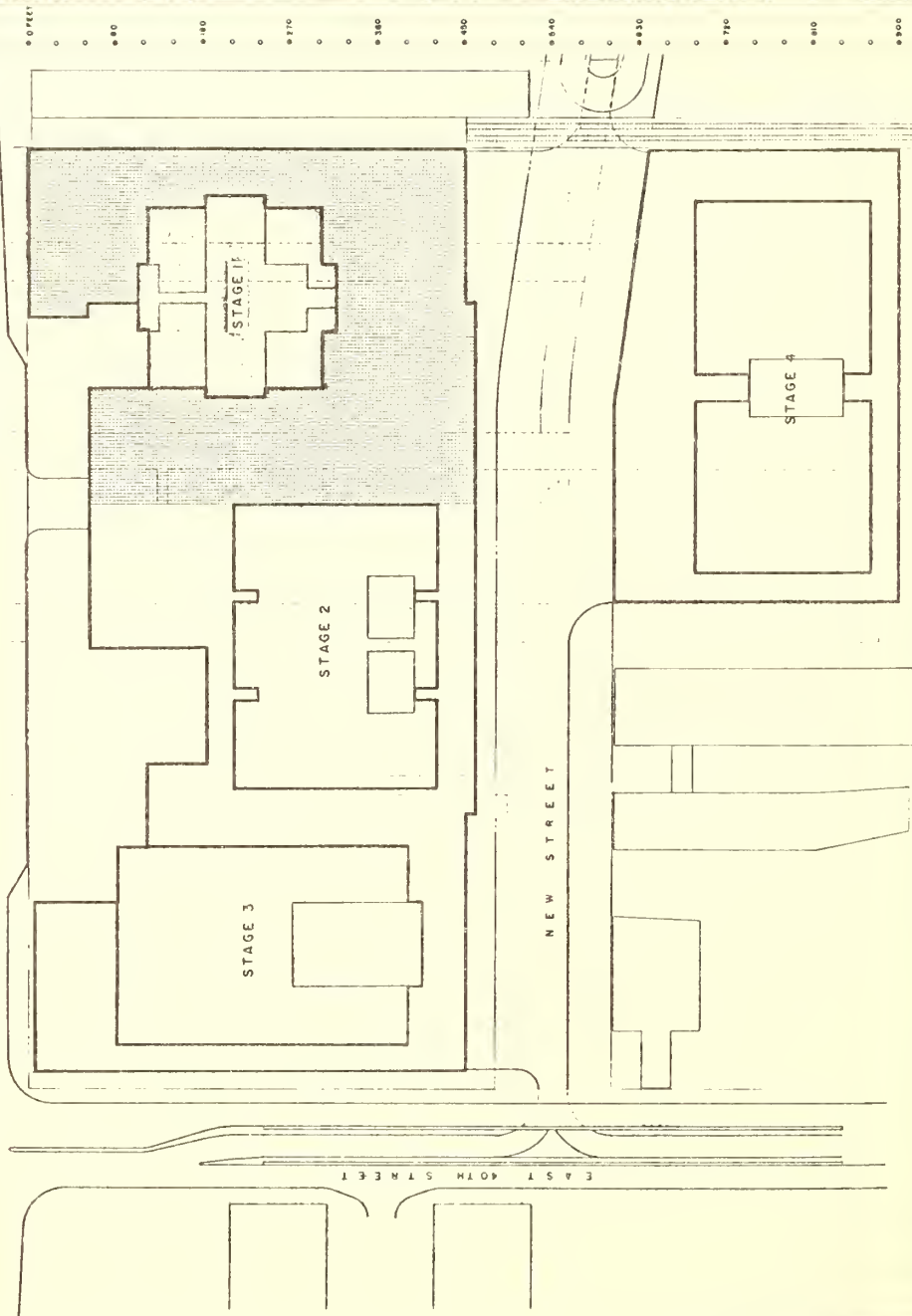
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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

EXHIBIT E7

FOR NAME: ...
DATE: ...

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WOODLAND AVENUE

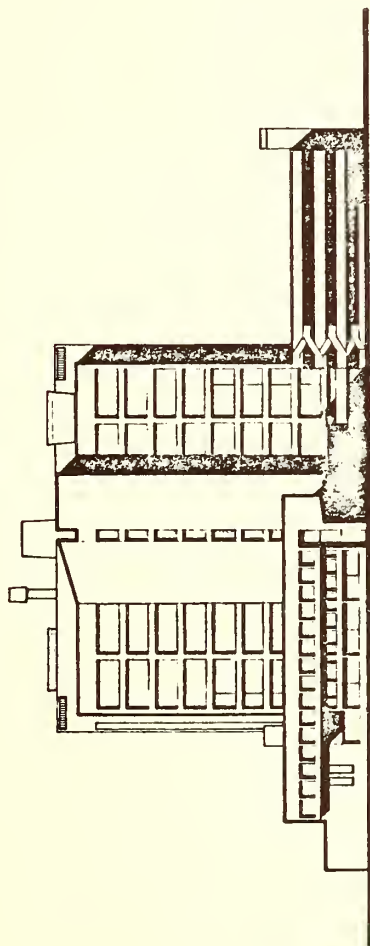


**PROTOTYPE
MULTI - LEVEL
INDUSTRIAL BUILDING
IN CLEVELAND**

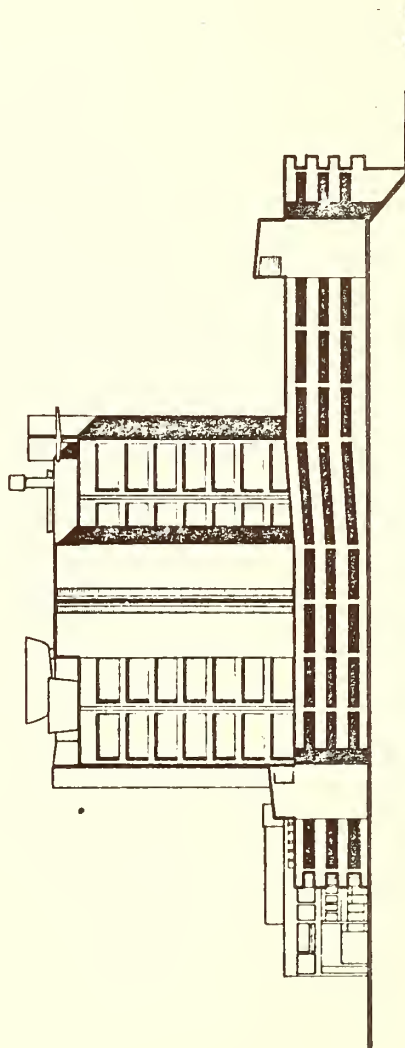
FOR THE FOODS INDUSTRY

PROTOTYPE ONE

ELEVATIONS



N O R T H E L E V A T I O N



W E S T E L E V A T I O N



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T.A. PROJECT NUMBER : 03-6-09056

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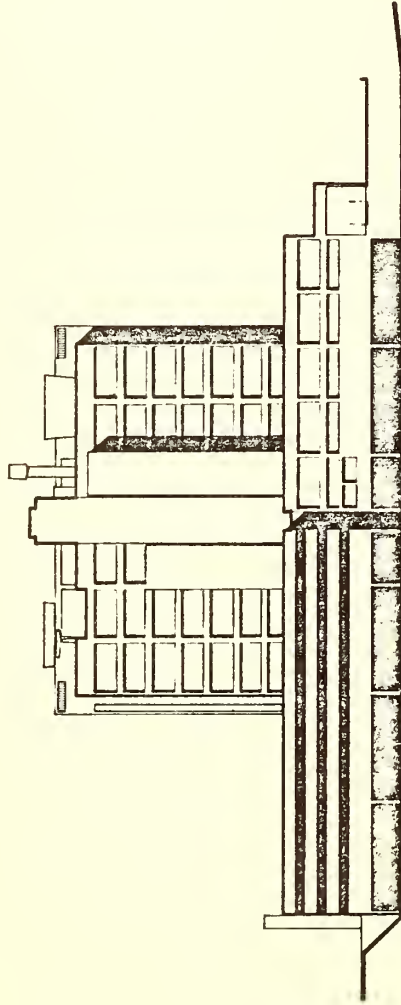
EXHIBIT EB

PROTOTYPE
MULTI - LEVEL
INDUSTRIAL BUILDING
IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

ELEVATIONS



S O U T H E L E V A T I O N



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T/A PROJECT NUMBER : 03-6-09056

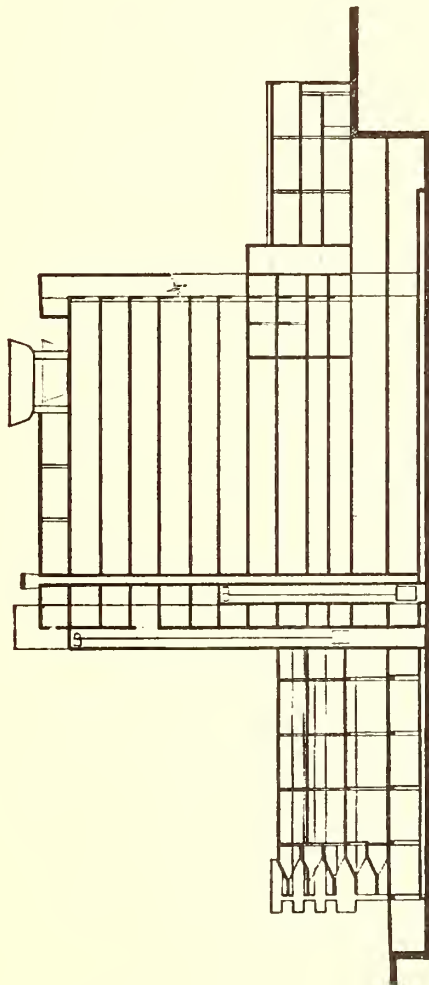
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EXHIBIT E9

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

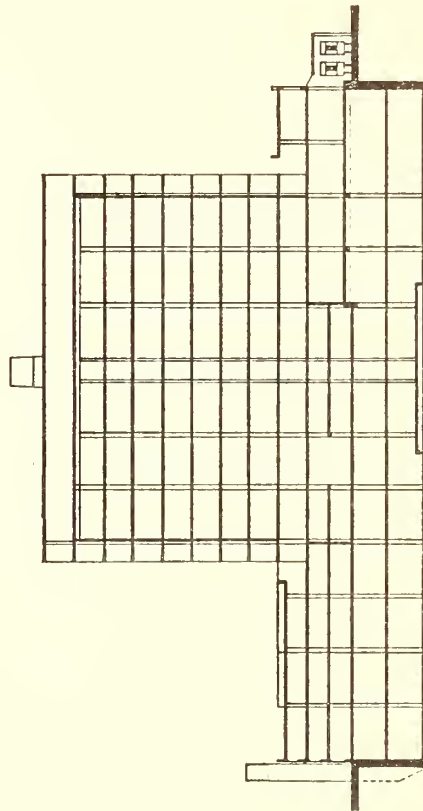
PROTOTYPE ONE

SECTIONS



NORTH - SOUTH SECTION B-B

ROOF LEVEL	145'
LEV NO 11 Penthouse	145'
LEV NO 10	138'
LEV NO 9	130'
LEV NO 8	125'
LEV NO 7	118'
LEV NO 6	112'
LEV NO 5	105'
LEV NO 4	98'
LEV NO 3	92'
LEV NO 2	85'
LEV NO 1 Garage	78'
SUB-LEV NO 1	-10'
SUB-LEV NO 2	-40'



EAST - WEST SECTION A-A

ROOF LEVEL	145'
LEV NO 11 Penthouse	145'
LEV NO 10	138'
LEV NO 9	130'
LEV NO 8	125'
LEV NO 7	118'
LEV NO 6	112'
LEV NO 5	105'
LEV NO 4	98'
LEV NO 3	92'
LEV NO 2	85'
LEV NO 1 Garage	78'
SUB-LEV NO 1	-10'
SUB-LEV NO 2	-40'



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-D9D56

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DATE: 10/1/55

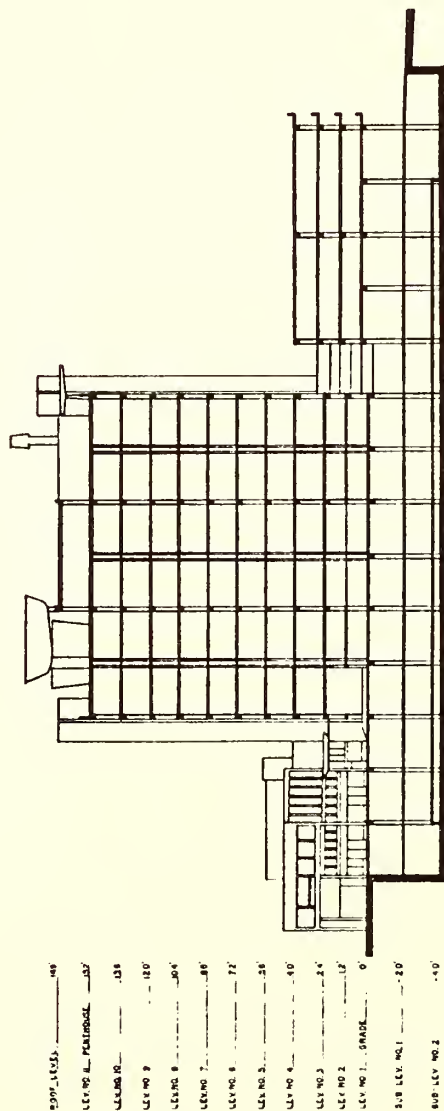
EXHIBIT E10

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

SECTION



NORTH - SOUTH SECTION C-C



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : D3-6-09056

DATE: 10-1-66
EXHIBIT E1

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

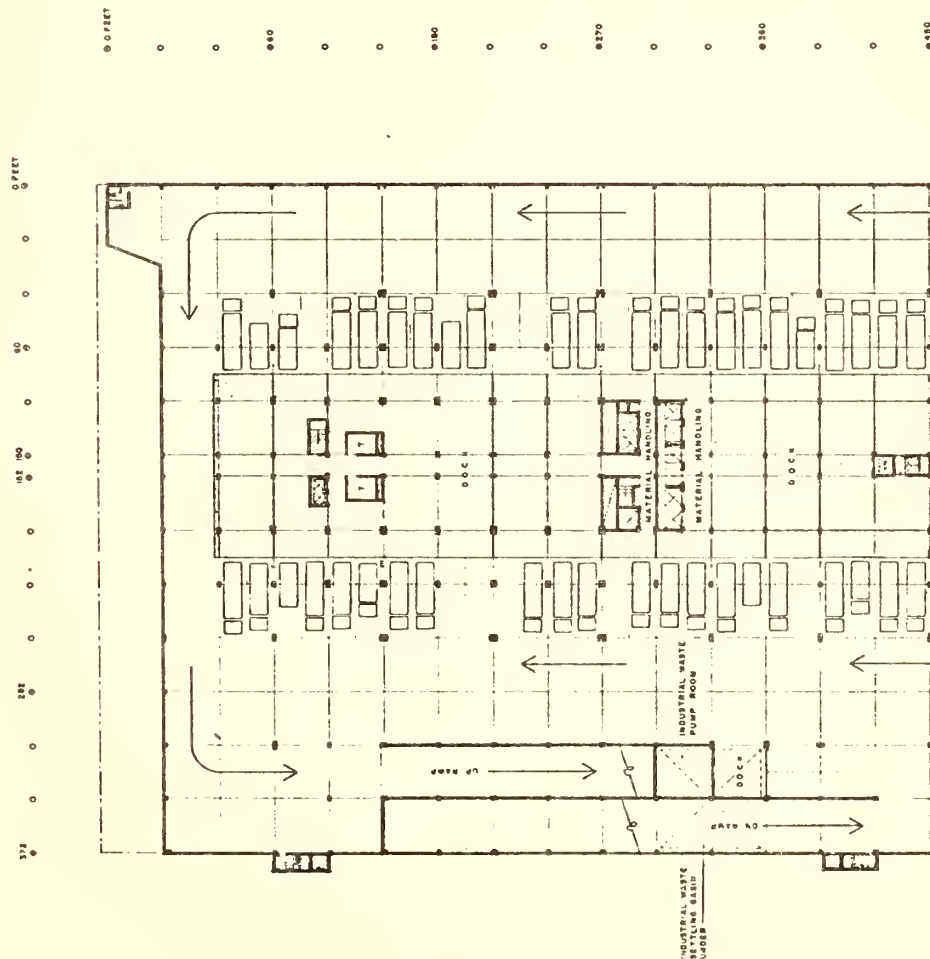
SUB-LEVEL 2

- WAREHOUSE & PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



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T/A PROJECT NUMBER: 03-6-09056

100 NUMBER 60 72
DATE: EXHIBIT E12



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

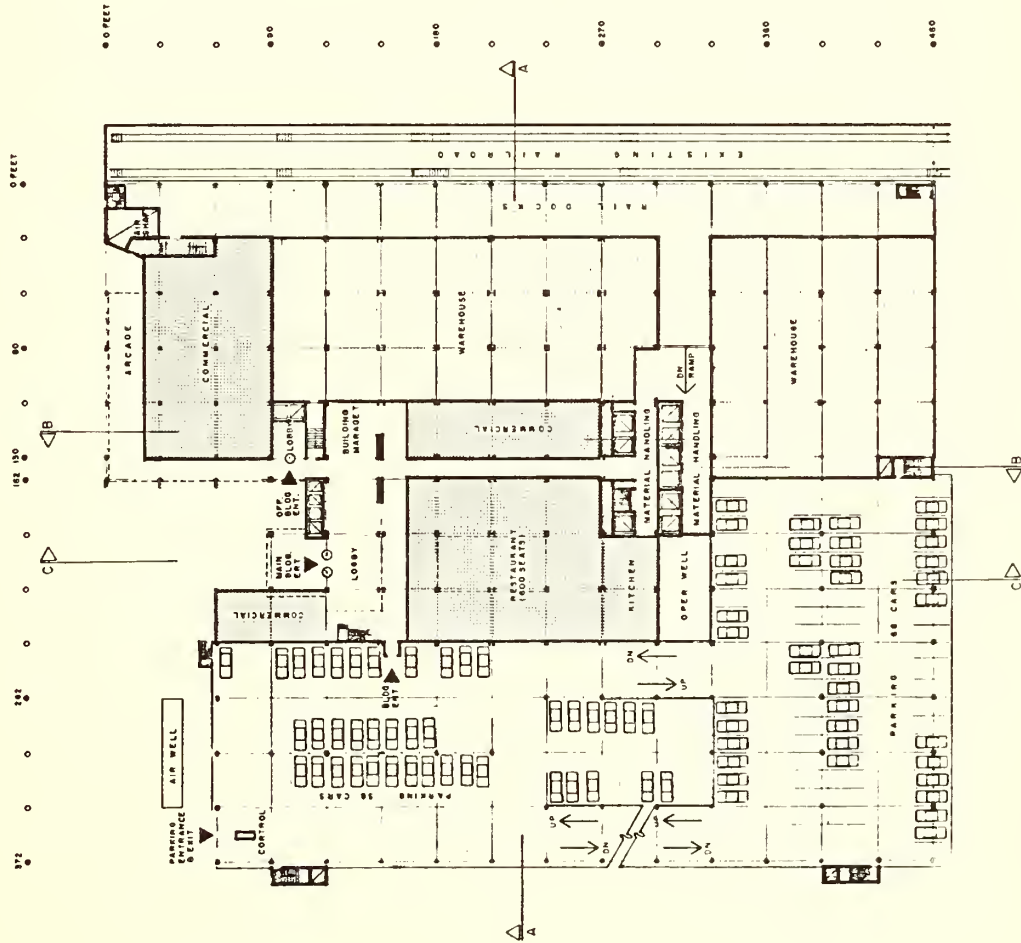
LEVEL I

WAREHOUSE & PROCESSING
COMMERCIAL
DOCK AREA
VERTICAL CIRCULATION



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T/A PROJECT NUMBER D3-6-D9D56

LOG SHEET 6.17
EXHIBIT E14



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

LEVEL 2

WAREHOUSE & PROCESSING

COMMERCIAL

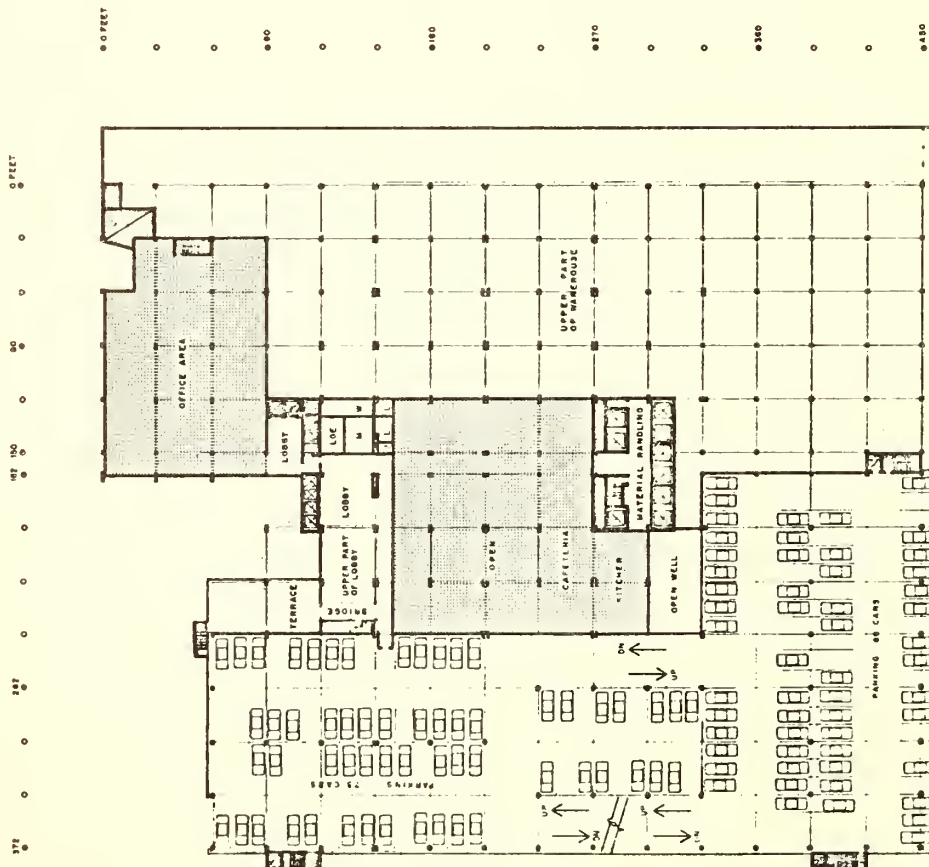
DOCK AREA

VERTICAL CIRCULATION



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

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EXHIBIT E15



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY
PROTOTYPE ONE

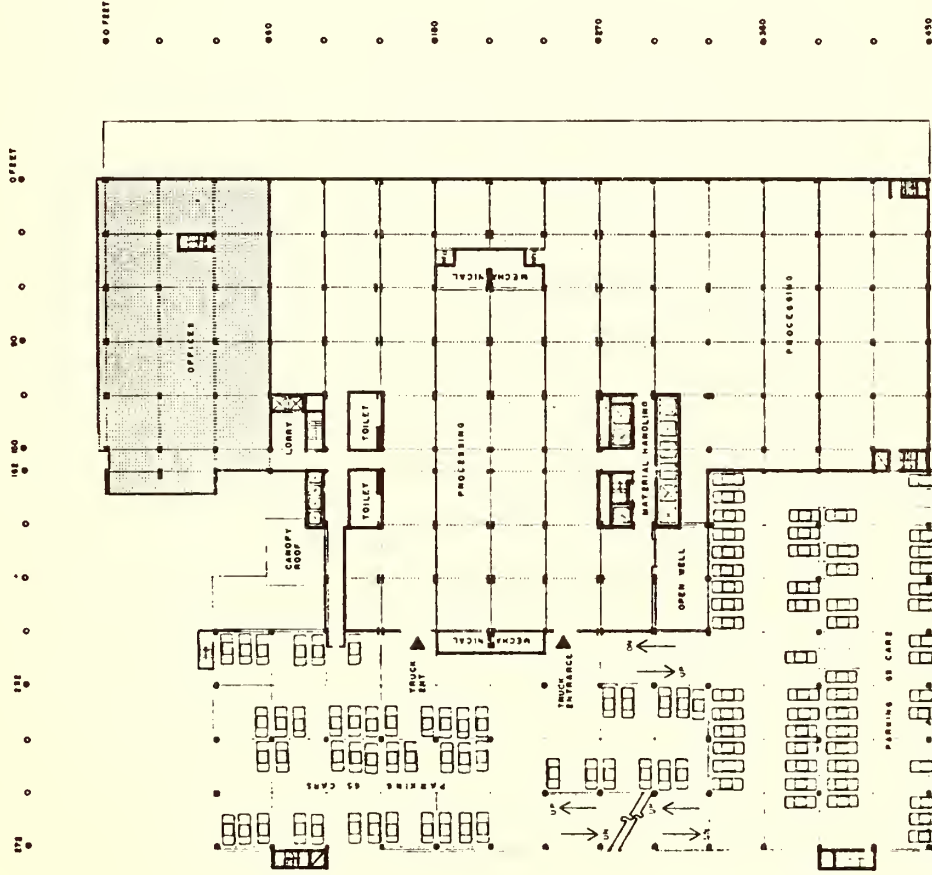
LEVEL 3

- WAREHOUSE & PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



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T/A PROJECT NUMBER 03-6-09056

EXHIBIT E16



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

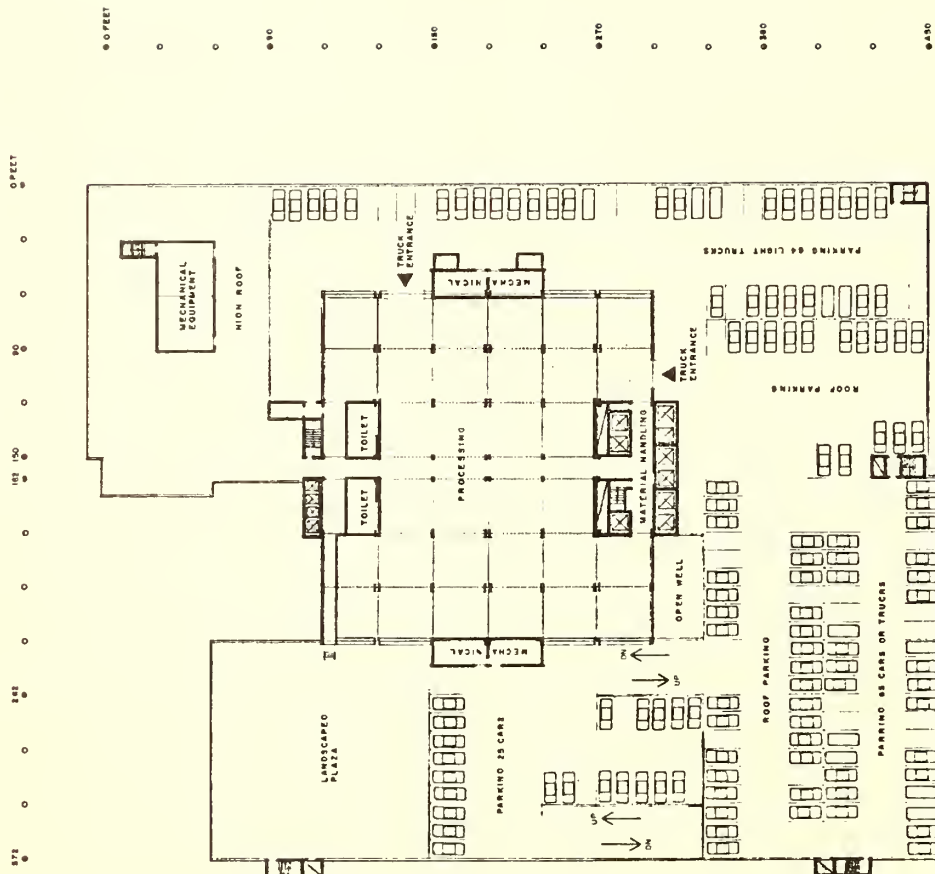
LEVEL 4

WAREHOUSE & PROCESSING
COMMERCIAL
DOCK AREA
VERTICAL CIRCULATION



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

EXHIBIT E17



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

LEVELS 5 THRU 10

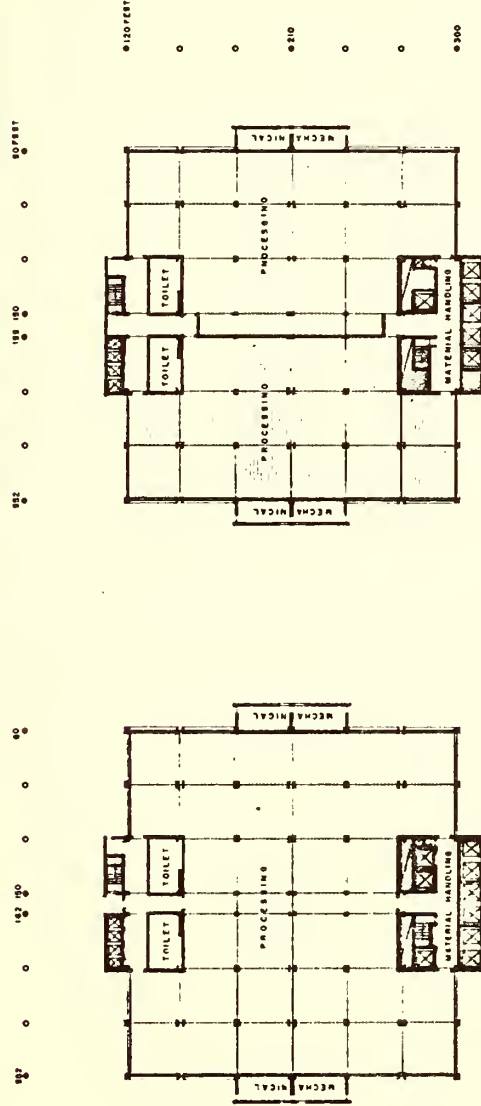
WAREHOUSE & PROCESSING
COMMERCIAL
DOCK AREA
VERTICAL CIRCULATION



PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER 03-6-09056

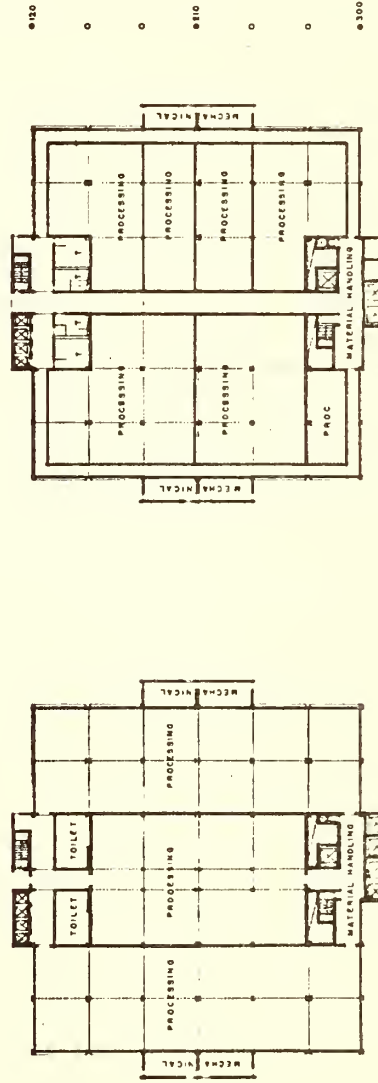
100 SQUARE FEET
DATE 11/1/68

EXHIBIT E18



5TH LEVEL PLAN
TYPICAL 1 TENANT LAYOUT

7TH LEVEL PLAN
TYPICAL 2 TENANT LAYOUT



9TH LEVEL PLAN
TYPICAL 3 TENANT LAYOUT

10TH LEVEL PLAN
TYPICAL MULTI-TENANT LAYOUT

EXHIBIT E 19
SUMMARY OF BUILDING CHARACTERISTICS

I.	SITE	
A.	Land Area	4.3 acres
B.	Building Coverage at Grade	85.8 %
C.	Gross Floor Area Ratio	5.8
II.	BUILDING (see Exhibit E20)	
III.	SERVICE FACILITIES	
A.	Car Parking Spaces	495.0
B.	Truck Docking Spaces	61.0
C.	Truck Holding Spaces	102.0
D.	Railroad	
1.	Sidings	2.0
2.	Car Spots	18.0
E.	Freight Elevators	9.0
F.	Passenger Elevators	6.0
IV.	DENSITY (No. of Employees)	
A.	Industrial (300 s.f./person)	1,060
B.	Commercial (100 s.f./person)	<u>624</u>
	Total Number of Employees	1,684

EXHIBIT E20
PROGRAM SUMMARY - PROTOTYPE ONE

Level	Square Feet Industrial		Square Feet Commercial			Square Feet Building Service				Square Feet Material Handling							Car Parking	Total
	Warehouse	Processing	Office	Retail	Restaurant - Cafeteria	Public Circulation	Mechanical	Building Storage	Building Management	Railroad Dock	Truck Dock	Truck Loading Position	Truck Holding	Truck Circulation	Material Handling	Operation Control		
Sub-Level # 2						2,940	2,345				33,880	36,450		89,370	4,140		169,125	
Sub-Level # 1	12,816					3,894	4,355	7,000			9,200	4,260	63,450	57,510	4,140	1,800	168,425	
Level # 1	30,660			12,050	10,200	7,560	1,440		1,080	12,616					6,430		141,736	
Level # 2			9,980		13,520	6,784	1,540								2,294		93,818	
Level # 3		63,660	16,600			2,264	2,820								3,050		150,294	
Level # 4		29,640				4,524	5,060								1,934		120,358	
Level # 5		30,240				3,084	1,920								1,934		37,178	
Level # 6		30,240				3,084	1,920								1,934		37,178	
Level # 7		30,240				3,084	1,920								1,934		37,178	
Level # 8		30,240				3,084	1,920								1,934		37,178	
Level # 9		30,240				3,084	1,920								1,934		37,178	
Level # 10		30,240				3,084	1,920								1,934		37,178	
Level # 11						1,600	18,944								2,534		23,078	
Sub-Total	43,476	274,740	26,580	12,050	23,720	48,070	48,024	7,000	1,080	12,616	43,080	40,710	85,950	146,880	36,126	1,800	238,000	
TOTAL	318,216		62,350			104,174				367,162							238,000	1,089,902
Group Percentage	14	86	43	19	38	46	46	7	1	3	12	11	23.5	40	10	.5	100	
Per cent of Total Building	29		5.5			9.5				34							22	100

CONSTRUCTION COST ANALYSIS

Findings Related to Objective 8

An estimate of construction costs for Prototype One was necessary for the financial analysis (see Chapter 3) and was made by Turner Construction Company, using the following procedure:

- A tenant fact sheet and a complete set of building drawings (Chapter 2, Exhibits E8 through E18, and Appendix 2, Exhibits E9 through E12) provided a complete description of the base building systems and materials.
- Based on experience and knowledge of construction costs and techniques, an estimate of unit material and labor costs was made for a projected 1969-1970 construction date.
- An estimate was made of the quantities of building materials which would be needed and the appropriate unit costs were applied to arrive at the total construction cost estimate.

OFF-SITE IMPROVEMENTS

Excavation and Site Preparation	\$425,000.00
Retaining Walls	195,000.00
Paving on Grade	30,000.00
Bridges	<u>50,000.00</u>
	\$700,300.00
Indirect Costs and Fees	<u>84,000.00</u>
	\$784,300.00

The off-site improvement cost includes only the portion of the depressed service street directly to the south of Prototype One, a two-way access ramp from the depressed street to East 51st Street to the east, and the widening of Woodland Avenue. It does not include the remainder of the depressed service street extending west to East 40th Street or the improvement of East 40th Street. (See Chapter 2, Exhibit E6.)

BUILDING AND SITE IMPROVEMENTS

	<u>Truck & Train Sub Levels 1&2</u>	<u>Parking Levels 1-4</u>	<u>Rentable Levels 1-11</u>	<u>Total Building</u>
*Site Work and Foundations	\$ 979,290.00	\$ 300,260.00	\$ 823,450.00	\$ 2,103,000.00
Structural Frame	1,155,000.00	1,260,000.00	3,853,500.00	6,268,500.00
Exterior Work	-	153,000.00	1,156,000.00	1,309,000.00
Interior Work	267,000.00	135,000.00	532,000.00	934,000.00
Elevators	-	-	846,000.00	846,000.00
Mechanical	780,000.00	100,000.00	5,576,000.00	6,456,000.00
Electrical	180,000.00	90,000.00	1,200,500.00	1,470,500.00
	<u>\$3,361,290.00</u>	<u>\$2,038,260.00</u>	<u>\$13,987,450.00</u>	<u>\$19,387,000.00</u>
Indirect Costs and Fees	370,000.00	224,000.00	1,540,000.00	3,134,000.00
	<u>\$3,731,290.00</u>	<u>\$2,262,260.00</u>	<u>\$15,527,450.00</u>	<u>\$21,521,000.00</u>

*The total cost of the site work and foundation is pro-rated over the three major building elements in direct ratio to the area of each.

One of the major objectives of the cost and financial analysis has been to identify the methods of developing and financing this project. The initial premise was to test the feasibility of a totally private development. At the same time, we could not preclude the possibility of using several sources of financing, including federal or local government. Therefore, the decision was made to show the costs separately for the major building elements and to follow the same format in the financial analysis (see Chapter 3, Appendix 3). This allows for more detailed analysis of the construction costs and for the possibility of applying different sources of financing to various parts of the project.

IDENTIFICATION OF TENANTS

Conclusion Related to Objective 1

The selected tenant subject group appears to be able to function in a multi-level, multi-tenant building.

SITE ANALYSIS AND PLAN

Conclusion to Objective 2

The Gladstone site and general area is well suited for the development of this type of project. The total site is large enough to accommodate a long range development of up to 16 acres. A mutually beneficial relationship could be established between the food industry tenants and the Northern Ohio Food Terminal as well as other existing industry in the area. If a multi-level industrial building were to be developed in Gladstone, changes would be necessary in zoning and urban renewal requirements, since this concept was not anticipated when these requirements were adopted.

SOIL ANALYSIS

Conclusion to Objective 3

Soil conditions place economic restrictions on the height and depth to which a building is constructed. The soil conditions of the Gladstone site required a floating slab foundation for the processing tower portion, because of its heavy loads and the limited bearing capacity of the soil. Height would be limited to 13 levels. In order to have two sub-levels, dewatering of the site would be required, because of water level being 18 feet below grade.

STRUCTURAL SYSTEM ANALYSIS

Conclusion to Objective 4

Structural members are required to be fireproofed, whereas in single-level buildings this requirement is only minimal. Columns have to support heavy floor loads of 250 pounds per square foot for industrial processing and vehicle maneuvering and stacking areas. In single level construction these facilities are provided for on structural slabs on-grade and the only structure supported on columns is the roof which has light loads.

MECHANICAL AND ELECTRICAL SYSTEMS ANALYSIS

Conclusion to Objective 5

The mechanical and electrical requirements of food processors are very demanding because of the need for waste disposal, exhaust, and refrigeration equipment. Utility services are also complex in the sense that vertical risers and vertical-to-horizontal junctions must be developed. Floor space must also be utilized for this purpose, thus decreasing building efficiency. The provision of environmental services to interior bays requires in high occupancy areas to compensate for inherent ventilation difficulties and humidity problems. In single-level construction, mechanical and electrical systems are less complex because they only need to run in one direction, horizontally; and heating and ventilating systems can be ducted through the roof, without the need for an extensive system of horizontal and vertical ducting. Therefore, multi-level systems are more costly.

MATERIAL HANDLING SYSTEM ANALYSIS

Conclusion to Objective 6

Material handling in a multi-level building is complex, requiring both vertical and horizontal systems. Therefore, it is better if the material produced is of low bulk and with minimal movement within the building. The material handling industry has not developed any means of vertical material handling flexible enough for various sizes of bulky goods that is an improvement over high speed, large capacity freight elevators. The need to provide for transfer from vertical to horizontal circulation becomes very costly. This cost increases as material movement increases and as the goods become larger and more bulky because of the difficulty in handling.

BUILDING DESIGN ANALYSIS

Conclusion to Objective 7

It is possible to design a multi-level building to meet the program requirement of food industry tenants. Sufficient flexibility can be provided to allow for a variety of tenant needs and growth. However, building efficiency is only 35% or approximately 378,500 square feet out of a total of 1,090,000. The factors which contribute to this low ratio are:

- Need for stairways
- Need to provide complex utility systems
- Need to provide truck docking, holding and maneuvering space on structure
- Need to provide vertical and horizontal material handling facilities
- Need to provide automobile parking on structure

CONSTRUCTION COST ANALYSIS

Conclusion Related to Objective 8

The cost of constructing a multi-level building is higher on a square foot basis than single level construction. For Prototype One the construction cost per square foot of space is \$19.76. By comparison, it was estimated that the cost of single level construction is \$10.00 to \$12.00 per square foot. The factors which affect the cost can be summarized as follows:

- Material handling: In a multi-level building, a vertical material handling system must be provided in addition to a horizontal system. Material handling elevators are relatively expensive with the cost for one elevator being about \$65,000.00.
- Structural: There is a need to put essential site services on structure such as parking, truck holding and truck docking. This means that the structural system must have the capacity to bear heavier loads of up to 250 pounds per square foot. By contrast, a single level building can have slab on grade and a steel frame which carries only light roof loads, with parking, docking and holding provided on grade for the cost of land plus paving.

- Mechanical and electrical systems: These systems become more complex in a multi-level facility because they have to run vertically as well as horizontally. For example, heating and ventilation in a single level building can be provided by ducting through the roof. In this facility, provisions have been made to mechanically circulate tempered air throughout the building in an internal duct system.
- Building code: The requirements for fireproofing, fire escapes, stairways and sprinklers in multi-level buildings are costly.

CHAPTER 3

PROTOTYPE BUILDING ONE

PRELIMINARY CONCLUSIONS AND PROGRAM REVISIONS

A. OBJECTIVES

B. STUDY METHODS AND FINDINGS

1. FINANCIAL ANALYSIS

2. DEVELOPMENT CONSIDERATIONS

3. MANAGEMENT CONSIDERATIONS

4. EVALUATION OF FOOD INDUSTRY AS TENANTS

5. EVALUATION OF BUILDING PROGRAM AND DESIGN

C. CONCLUSIONS

With the completion of the Prototype One building design and the construction cost estimate, the next step in the work program was to test its economic feasibility and market potential. Throughout this phase, the basic premise was to test the feasibility of developing this building as a private enterprise. Within that context, the objectives were:

1. To evaluate the financing considerations relative to Prototype Building One.
2. To evaluate considerations relative to the development of Prototype Building One.
3. To evaluate management factors relative to operating Prototype Building One.
4. To evaluate food industry firms as potential tenants in Prototype Building One.
5. To develop general conclusions regarding the program and design of Prototype Building One and identify the necessary revisions.

The testing of the economic feasibility and market potential of Prototype Building One were set up and guided by Ernst & Ernst, the economic and marketing consultants for this project. One part involved a complete financial analysis; the other was a market survey consisting of a series of personal interviews with representatives of Cleveland food industry firms and developers. These are discussed in this chapter and Appendix 3, with the procedure summarized as follows:

1. A complete pro forma financial analysis was made to determine whether the building would be economically feasible as a private development.
2. Personal interviews were held with private developers to get their reactions to the building design and cost factors.
3. Personal interviews with food industry tenant prospects formed the basis for evaluating the building management factors.
4. Personal interviews with food industry firms provided the basis for evaluation of their potential as tenants.
5. Personal interviews with food industry firms provided the evaluation of the building program and design and the basis for revisions.

FINANCIAL ANALYSIS

Findings Related to Objective 1

The preliminary analysis of sources of financing and developer interest (see Chapter 1) indicated that there was private developer interest of a tentative nature and that given the economic feasibility, sources of financing would be available. Therefore, after completing the building design and construction cost analysis (see Chapter 2), it was necessary to determine the financial feasibility of Prototype One.

OPERATIONAL ASSUMPTIONS

A basic assumption was that private equity, and management know-how would be supplied by a real estate developer or group who would own the building, manage the property and negotiate the leases. The property management concept was unique in that the building would provide tenants with facilities and services not available in suburban industrial facilities, thus giving the tenant more for his rental dollar. This concept of uniqueness resulted in the inclusion of cost factors based on the following building services:

- Central management would provide routine maintenance for tenant areas; general repair, cleaning and maintenance for common building areas (meeting rooms, lobby, employee cafeteria, public circulation areas); and external maintenance of the building and grounds.
- Property tax, insurance, normal utility costs and general building overhead costs would be paid by the building owner. The tenant would pay for such costs as leasehold improvements and utilities in excess of normal requirements.
- A management service would operate, maintain and coordinate the various elements of the material handling system, truck docking and truck holding and the automobile parking garage.

Approximately 35% of the total constructed area is for use by tenants as industrial or commercial space and the rest for common services, utilities and public circulation. Thus, a net rental concept similar to that used in office buildings would apply --- that is, each tenant receives ancillary services and utilizes common supporting facilities, all paid for as part of the rental rate. Although the net lease concept would require greater rental rates, it appeared to have the following potential advantages for tenants:

- Central management of building services, maintenance and material handling should reduce each tenant's total operating costs.
- Tenants in similar businesses such as food processing could benefit from economies of common cold storage facilities and food inspection.
- Availability of common facilities such as meeting rooms and an employee cafeteria would relieve tenants of the initial capital burden of constructing such facilities as leasehold improvements.

FINANCING ASSUMPTIONS

Preliminary financial analysis of Prototype One indicated that with about one-third of constructed square footage available for rental, rental rates would have to be very high to recover capital and operating costs, and the margin of profit for a developer would necessarily be quite narrow. Therefore, in evaluating possible sources of capital, three criteria were considered:

- As much public funding as possible should be obtained to minimize the amount of private investment which would have to be recouped.
- With capital costs high in relation to rental income, the investment required from private developers would have to be minimized with a high ratio of long-term debt to equity investment.
- Some form of public guarantee or matching public funds would be necessary to attract private long-term lenders and to minimize interest costs on the substantial debt required.

After evaluating possible sources of financing (see Chapter 1) according to these three financing criteria and investigating the possibility of commercial bank loans (see Appendix 3, Section A), the following financing package was assumed to be the most realistic.

<u>Fund Source</u>	<u>Per Cent of Total</u>
Private equity (tenant corporation and/or independent developer)	10%
Economic Development Administration direct loan @ 4 3/4% interest	65%
Commercial bank mortgage loan @ 7 1/4% interest	<u>25%</u>
TOTAL FUNDING	100%

The commercial banking mortgage loan was assumed to have a rate of 7 1/4% (in keeping with 1968 interest rates) with earlier maturities (five to ten years maximum) and the E.D.A. loan was assumed to have all of the later debt maturities. The debt package of E.D.A. and commercial bank loans has a composite rate of 5 3/4% and a maturity of 25 years.

Since Prototype One represented unique design and management concepts, there was no data on operating and maintenance costs which was directly comparable. However, the projected Prototype One construction costs together with published data on office building operating costs did permit a reasonable assessment of the accrued costs and cash outflows that might be expected with this building. (See Appendix 3, Section A.)

The following basic approach was used to develop the pro forma analysis. Project costs, financing packages, and cash disbursements were assembled by major building segment

(truck and rail, parking, rentable levels, etc.) in order to identify all of the cash outflows and to summarize them on the basis of net rentable square feet. From this analysis, the rental rate required to break even was determined. Then pro forma profit and loss statements were prepared by segment to show the favorable federal income tax shields which would arise from accelerated depreciation in the early years. (See Appendix 3, Section A.)

PRO FORMA STATEMENTS

It is significant to note the following factors which relate to the financial analysis. (See Appendix 3, Section A, Exhibits E1 through E8.)

- It has been anticipated that the City would provide the off-site improvements. Therefore, this cost is shown as part of the project cost, but is not included in the cash flow analysis. The cost of land is included as part of the project cost to be assumed by the developer.
- As the financial picture developed from these statements, it became apparent that the rental rate would be above the current competitive market. Therefore, the rents shown represent the amount needed to reach a break-even point; a return on investment for the developer has not been included.
- It should also be noted that this pro forma analysis accounts for all the costs to be considered by the owner in operating such a building. An individual owner or developer may elect to make various leasing arrangements whereby the tenant assumes the direct responsibility for the maintenance, taxes or other costs.

The complete financial analysis is given in Appendix 3, Section A, and general findings are as follows:

	<u>Costs</u>
Total Project Cost	\$26,449,300.00
Total Project Cost Per Constructed Square Foot	\$ 24.27
Total Project Cost Per Square Foot of Rentable Space	\$ 71.92
Annual Cash Requirement for Mortgage Payments and Operations	\$ 3,077,750.00
Annual Cash Requirements Per Square Foot of Rentable Space ¹	\$ 8.37

¹ Rentable space refers to actual usable commercial or industrial space which amounts to 367,750 square feet or 35% of the total constructed square feet.

Land costs for this urban renewal area were \$2.00 per square foot in early 1968. This is only 1 1/2% of the total project cost. Construction costs represent 95.5% of the total project cost. These high construction costs are the result of multi-level construction --- i.e., the need to put essential services on structure, the need to provide for complex material handling, structural, environmental and utilities systems. The breakdown of major building parts is as follows:

- a. Automobile parking - 10% of total project cost.
- b. Truck docking and holding areas - 16.5% of total project cost.
- c. Levels 1-11 (excluding parking) - 69% of total project cost.

DEVELOPMENT CONSIDERATIONS

Findings Related to Objective 2

In discussions with three private industrial developers, the reaction to Prototype Building One was negative insofar as its development potential is concerned. The basic reason is the low level of building efficiency (i.e. per cent of rentable square footage to the total constructed square footage). As building efficiency goes up, the project costs are spread over a larger amount of space which results in a lower rental rate per square foot. One developer stated that 80% is the minimum standard for building efficiency; however, the efficiency of Prototype Building One is 35%. This is best illustrated by comparing the total project cost per constructed square foot of \$24.27 to the total project cost per square foot of rentable space of \$71.72. One major cause of low building efficiency is the amount of space needed for truck docking and holding and the automobile parking area. These areas must be provided for on structure because of the limited amount of vacant urban industrial land. By contrast, with a single level facility, automobile and truck areas can be provided at grade for the cost of land plus paving; this is much less costly per square foot than \$11.05 for the truck levels or \$9.51 for the car parking areas.

MANAGEMENT CONSIDERATIONS

Findings Related to Objective 3

The recent trend in industrial development has been toward single level buildings on suburban sites. From the developer's point of view, the total investment must be minimized by keeping construction and land costs as low as possible. Construction costs are kept down by building single level space. Although more land is required to hold a sprawling structure, the savings on construction is more than enough to offset the cost of additional land. In addition, the cost of suburban land is generally lower than that of an urban site in the Greater Cleveland Area.

The general practice is to lease space on the basis of gross area. In addition to the rent, the tenant pays for utilities, building maintenance and possibly all or part of the property taxes. In early 1968, rental rates for suburban industrial space were in the range of \$1.00 to \$1.50 per square foot. The rental rate for Prototype One was too high to be competitive with current rents, even if they included complete building maintenance and other overhead costs.

In keeping with the unique design concept of the building, the original management concept involved the use of a central building management service which would be responsible for the following:

- Leasing arrangements to allow for growth and expansion by tenants through proper combinations of long and short term leases.
- Building maintenance and repair to provide a high standard so the building would remain an asset to the investors, the City and the community, and to relieve the tenant of certain responsibilities in the care of his space.
- Scheduling of truck holding, docking and loading and internal material handling to permit an orderly flow of goods into and out of the building.
- Management of central building support facilities such as lobby - reception area, lunch rooms, infirmary, conference rooms, etc., to provide security and services which the tenant might not be able to afford individually.

Food industry interviewees saw benefit in having central and support facilities available. The idea of central management over material handling was not well received by some food industry interviewees especially the food distributor operations for the following reasons:

- They prefer to retain close, personal observational control over the scheduling of trucks and loading and unloading.
- Many firms must be able to respond quickly to customer requests and they fear they would lose their flexibility to deliver rush orders under a centralized system.

The interviewees' evaluation of the multi-tenant concept is discussed later in this chapter as it relates to their specific requirements and the building design.

EVALUATION OF FOOD INDUSTRY TENANTS

Findings Related to Objective 4

In conducting the market test of Prototype Building One, the main purposes were to ascertain specific reactions to this building and to determine if a market exists in the food industry for space within a multi-level building. The market test was conducted as a series of personal interviews with thirty-five persons representing twenty-nine different companies, or agencies. An explanation of the project and its background was given, illustrated by drawings, a model and a written tenant fact sheet. (See Appendix 3, Section C.)

Food processors were originally defined as the prime tenant subjects to be interviewed (see Chapter 2). During the early stage of interviewing, it became apparent that the processor market had substantially shifted from the City of Cleveland to the suburbs. The market test group was redefined to also include food distribution operations such as jobbers, purveyors, meat processor-wholesalers and commission merchants. These operations presently occupy space in the Gladstone area adjacent to the proposed site. Interviewees were selected based on these factors:

- Firms which are presently located in Cleveland.
- Firms which lack adjacent land for expansion.
- Firms which have few relocation possibilities open in the City.
- Firms which are presently occupying physically or functionally obsolete facilities.

The findings which deal with food industry potential as tenants are summarized below. (See Appendix 3, Section C for detailed discussion.)

- Many of the major food firms have moved their facilities to suburban locations, or plan to do so, including four major chains, a large wholesaler, a large automatic merchandising operation, and a large prepared foods processor. Thus, many of the firms which might have led in establishing the Gladstone area as Cleveland's food industry center are no longer in the City. The remaining tenant market consists of meat wholesalers, commission merchants, purveyors, and jobbers.
- Smaller and medium size food operations in Cleveland have traditionally paid rental rates in the range of \$.75 to \$1.25 per square foot. This does not include operating and maintenance.
- Most of those who form the potential tenant market occupy old facilities which are physically and functionally obsolete.
- New federal meat and poultry inspection laws will force many firms to upgrade their facilities which may cause some to relocate. Many may not be able to afford a move to new quarters.
- Most interviewees have incomplete records which do not accurately reflect their costs of operation in their present facilities. They could not easily make comparisons of the costs they would incur in the proposed new building versus those presently incurred. Many are paying as much for maintenance as they pay for rent. Further

there are many inefficiencies which result from operating in obsolete facilities. They could not accurately predict what various firms in the industry could absorb as a new rental structure, but it was generally felt that the broad range of \$2.00 to \$3.00 per square foot would be the maximum most could afford under foreseeable conditions.

- Most of the small food businessmen have not been able to build up capital reserves adequate to meet expansion needs for a growing market. Because of their very low profit margin on sales and the pressure of larger firms gaining an increasing share of the market, these small firms are not good prospects for bank loans. Therefore, they continue to occupy the same obsolete facilities and have established themselves in a tradition of operational inefficiency.
- Food industry labor wage scale starts at \$3.00 an hour with fringe benefits of \$.70 to \$.80 per hour. There is no provision for an apprentice system. Therefore, small or medium operations cannot afford to hire non-skilled workers who would not be immediately productive. Generally, the small and medium firms have not been enlarging their labor force substantially over the past several years.

EVALUATION OF BUILDING PROGRAM AND DESIGN

Findings Related to Objective 5

The market test, as described above, also resulted in reactions to the Prototype Building One design and program. These comments provided the basis for revisions in the design. (See Conclusions of Chapter 2; Chapter 4.) The interviewees' reactions are summarized here and given in detail in Appendix 3, Section C.

REACTION TO THE MULTI-LEVEL DESIGN CONCEPT

- It is difficult for interviewees to visualize the need for multi-level industrial facilities as a part of long range industrial land planning.
- There is a definite preference for single level facilities, as evidenced by recent moves to new facilities and as expressed by persons presently occupying space in multi-level buildings. In addition, the interviewees could not visualize how a modern multi-level facility could function efficiently.

- Interviewees indicated a preference for a two or three level building with truck access to all levels and docking space on each level, immediately adjacent to tenant areas. Indications are that 250,000 to 400,000 square feet could be marketable, if an acceptable lease rate could be developed.
- Concern was expressed over certain conditions inherent in occupying rented or leased space in any building. This included costs of leasehold improvements, problems of expansion, and problems such as odor and industrial waste control, which might result in incompatibility among tenants.
- The building was designed to uniform engineering standards and specifications to provide for maximum tenant flexibility. However, some tenant prospects felt that their needs did not warrant this type of construction and the resultant costs.
- Interviewees felt it would be difficult to consolidate the various material handling methods used by many tenants into one program for a multi-level building.
- Interviewees recognize that the amount of truck docking and holding space offers a better alternative than exists in their present facilities and would produce a more orderly traffic flow. However, they are concerned over the amount of time a truck might have to wait before being loaded or unloaded and over congestion at peak hours in use of elevators.

REACTION TO LOCATIONAL FACTORS

- The availability of rail sidings adjacent to the building is an advantage to those presently using rail, but is not an attraction to those presently receiving goods by truck.
- Accessibility to public transportation is not a significant advantage. Employees prefer not to ride public transit in the area, especially those arriving or leaving in the hours after dark.
- Larger food processors have little need to be located in proximity to competitors. Jobbers, commission merchants, purveyors and meat processor-wholesalers continue to find it important to be located near their competitors as part of the conduct of daily business.

- The Gladstone area has good potential for new facility construction, because of its locational advantages with regard to rail and highways, its central location within the city, and the scarcity of well located vacant industrial land within the city. However, the historical image of the area is not favorable because of congestion, the potential for vandalism, pilferage and crime, and the lack of progress in the Gladstone Urban Renewal Program.
- Availability of an unskilled labor market is not an attraction to most food businesses, because of wage scale factors. Also, many of these firms are ethnic in nature and only hire a small number of inner-city residents.
- Proximity to the Woodland Job Center was not a positive factor, since most interviewees would rather train employees under their own supervision.
- It would be desirable to have a cold and frozen food storage facility located in any food industry grouping, since interviewees stated that they presently use a number of such facilities located in various buildings throughout the central city.
- The Gladstone location continues to be desirable for commission merchants, purveyors, jobbers and some meat processor-wholesalers who serve buyers located in the City. However, it is no longer attractive to food processors with a regional Northern Ohio market. With the interstate highway system accessible from both the City and suburbs, larger companies with a regional market find a suburban location to be more advantageous for their total market area. Four of the five major food chains have moved their major distribution, storage, and processing facilities to suburban locations; a catering operation is planning to move to a suburban site; and a large automatic merchandising company has decided to build a new suburban facility.

FINANCIAL ANALYSIS

Conclusion to Objective 1

The total project cost of Prototype Building One coupled with the low ratio (35%) of rentable space to total space put the rental rate at a level (over \$8.00) which is not competitive with rental for suburban industrial space (\$1.00 to \$1.50).

- In light of the existing land and construction costs in Cleveland, it is most important to keep construction costs at a minimum for the required space, because construction cost was the primary factor in the total project cost.
- In order to make a multi-level industrial facility economically feasible in the private development market, building efficiency must be increased so that costs and rental rates per square foot can be reduced to make it competitive with single-level industrial facilities.
- The major factor in causing the high rental rate of \$8.00 per square foot is the need to devote space on structure to truck areas, automobile parking and material handling. This means that construction costs are inherently higher, financing costs are higher and building efficiency is lower. The higher costs are spread over a smaller proportion of actual rentable space and the individual tenant must bear a higher cost. Increasing the building efficiency would result in making the rental rate per square foot lower and ease the burden on each tenant.
- The overhead, operating and maintenance costs which are reflected in the lease rate are costs which the tenant prospect is currently paying for as separate items, without the benefits and efficiencies of central control and large volume rates.
- Prototype Building One is not economically feasible as a private development. The question of whether any multi-level facility is feasible as a private enterprise remains to be answered in light of the modifications to be made in the building design.

DEVELOPMENT CONSIDERATIONS

Conclusions to Objective 2

Private developers are not presently interested in the multi-level, multi-tenant building concept in Cleveland. Developers, builders, and realtors generally look on suburban

industrial development as being a better investment because taxes are lower, land is less costly, the general environment is more attractive and there is adequate space for single level construction which is less costly.

The concept of a net lease package (as defined in the Financial Analysis, p. 3-2 this chapter) is not generally in use in the industrial rental market. It appears that this concept is not understood by potential tenants. Any marketing effort would have to include a complete explanation of the net lease package and its advantages to the tenant.

The need exists for some sort of central development or promotional force to actively promote or back a multi-level building. This could be an industry, a private developer, the government, a non-profit corporation or a railroad. Many of the objections voiced by interviewees or tenant prospects could be overcome by the enthusiasm generated by such a sales effort.

MANAGEMENT FACTORS

Conclusion to Objective 3

The general nature and limitations of management of a multi-level, multi-tenant building could not be ascertained within the limits of this project. However, the following factors regarding Prototype Building One were apparent:

- Leasing of tenant space, and central building maintenance could be handled by a central management firm for the entire building.
- Food industry tenant material handling demands and delivery needs make central material handling management impractical for this industry.

EVALUATION OF FOOD INDUSTRY AS TENANTS

Conclusion to Objective 4

Generally, the food industry is not a good tenant subject for Prototype Building One for the following reasons:

- Food processing is one of the major industries tending to move out of the central city. Those firms which serve a regional market find suburban locations with access to the interstate highway system more advantageous. It appears that the market for central city space within the food industry is limited.
- The potential tenant market (for central city space) consists of purveyors, meat processor-wholesalers, commission merchants, and jobbers. This group is presently paying very low rent (about \$.75 per square foot), and is limited in the amount it can increase its rent because of its low margin of profit.
- Although the Gladstone area offers many locational advantages to continue as the major fresh produce market center for the metropolitan area, the large food firms which might have historically provided leadership in developing Gladstone as a food industry center have moved out of the City of Cleveland.
- Food industry tenants handle large volumes of materials within a short period of time which results in the need for extensive trucking, rail and vertical and horizontal material handling facilities. This contributes to the low building efficiency.
- The mechanical and electrical requirements which are needed for this industry such as industrial waste disposal and exhaust systems add to the construction cost of the building.
- The general trend in the food industry is toward single level facilities. The presence of aging vacant multi-level space and the continued use of functionally obsolete space make it difficult for interviewees to visualize the efficient operation of a new multi-level building.
- Many of the firms interviewed do not know how much it costs them to operate their present facilities. While some can afford to pay higher rent for modern, efficient facilities, they cannot say how much because they are unwilling to commit themselves until they are ready to move and because their operating cost records are incomplete.
- The present rental rates of the food industry firms generally range from \$.75 to \$1.25 per square foot. The calculated rental rate of Prototype Building One is in excess of \$8.00 per square foot. The financial situation with the food industry potential tenants is such that they cannot afford this great an increase in rent.

EVALUATION OF BUILDING PROGRAM AND DESIGNConclusion to Objective 5

Program and building revisions were necessitated by the following factors which were brought to light during the market test.

- The tenant market changed from food processors to commission merchants, purveyors, meat processor-wholesalers and jobbers, with a minimal amount of space for small processors.
- The new tenant prospects indicated their desire for direct control over the scheduling of their own trucks, without the need to share docking space with other tenants, or use elevators for internal material handling.
- Because the rental rates were beyond the reach of the prospective tenants, the following changes were considered for Prototype Two in order to decrease construction costs, increase building efficiency and decrease the rental rate.
 - a. Material handling elevators would be reduced in number by providing truck docking space on all levels.
 - b. The building height would be reduced to two levels above grade and one sub-grade level. This removes the need for the floating slab foundation and for dewatering the site.
 - c. Mechanical systems would be made less complex because food processors are no longer the primary tenant group.
 - d. Warehousing and processing space would be placed in the interior of the building, making concrete block walls adequate because there is also no longer the need for an expensive facade as there had been on the processing tower of Prototype Building One.
 - e. Common building services would be removed from the building to reduce initial construction costs. However, provision could be made for their later air rights development on Prototype Building Two.
 - f. The rentable area on each floor would be larger than in Prototype Building One, thus being less restrictive in terms of tenant size and expansion capability.

The details of Prototype Building Two are discussed in the next chapter and in Appendix 4.

CHAPTER 4

PROTOTYPE BUILDING TWO - FOOD INDUSTRY

A. OBJECTIVES

B. STUDY METHODS AND FINDINGS

1. DEFINITION OF BUILDING PROGRAM
2. BUILDING DESIGN
3. FINANCIAL ANALYSIS
4. DEVELOPMENT CONSIDERATIONS

C. CONCLUSIONS

As a result of the evaluation of Prototype Building One, several major factors became apparent regarding its design, the potential tenant market and the development potential.

- There was no large market for industrial space in the central city among food processors, since most of those who might have been suited for tenancy had already moved to a suburban site or were committed to such a move.
- A potential tenant market was defined within the food industry which consisted of distributors, i.e. jobbers, purveyors, commission merchants and meat processor-wholesalers. The major space requirements of this group were also identified, and it was concluded that Prototype One did not answer their functional needs.
- The financial analysis showed that the rental rate of Prototype One would be far beyond the current market and it pointed out the need to reduce rental rates by increasing the building efficiency and reducing construction costs.

As a result of these findings, it was determined that a new facility should be designed rather than merely modifying the existing design. The major objective was to design a multi-level industrial building to meet the requirements of food distributors which would be rentable at rates competitive with the current market as a private development. Secondary objectives were as follows:

1. To define the building program based on the requirements of food distributors as tenants.
2. To develop a site plan, building design and construction costs.
3. To determine, through a pro-forma financial analysis, whether the redesign effort achieved the necessary economies defined in Chapter 3.
4. To evaluate the considerations relative to development of Prototype Two.

The research and data collection for Prototype Building Two was somewhat less extensive than that of Prototype One, because much of the material remained applicable. Basic information which had been obtained from consultants (see Chapter 2, Appendix 2) was used along with the input from the market test of Prototype One (see Chapter 3, Appendix 3).

DEFINITION OF BUILDING PROGRAM

Findings Related to Objective 1

The findings of market analysis conducted for Prototype One (see Chapter 3, Appendix 3, Section B) delineated the characteristics of the potential tenant group within the food industry consisting of jobbers, commission merchants, purveyors and meat processor-wholesalers.

These can be summarized as follows:

- **Locational needs:** Near Northern Ohio Food Terminal; in close proximity to downtown area to serve their customers; close relationship to like businesses because of customer buying practices.
- **Present facilities:** Many are in functionally obsolete buildings, have inadequate space, and have inadequate truck docking or holding facilities. Some businesses may be forced to move or upgrade their facilities because of urban redevelopment projects and federal meat and poultry law enforcement.
- **Financial situation:** Many of these firms operate on a low margin of profit and presently pay rent of approximately \$.75 to \$1.00 per square foot. At the same time, they are also indirectly paying a penalty for inefficient operations, because of the poor quality of their facilities. Some may be able to absorb a higher rental, but the range is difficult to estimate.
- **Functional requirements:** Specific areas of concern which were expressed by interviewees can be summarized as follows:
 - a. Truck docking facilities should be adjacent to tenant production areas to give each tenant control over scheduling, loading and unloading.
 - b. Material handling system should not be centralized because of possible schedule conflicts and the desire to have personal control over the flow of goods.

- c. Industrial space should be flexible enough to accommodate operations which range from warehousing to complex processing.
- d. Mechanical and electrical systems should be adaptable to specific tenant requirements without overdesigning the basic building.

SITE AND BUILDING DESIGN AND COST

Findings Related to Objective 2

The new building design evolved as an answer to the criteria set out in the new building program. This was the result of the input of data from the market test, the consultant studies and other research conducted earlier in the project. (See Chapter 2, Appendix 2, Chapter 3, Appendix 3.)

SITE ANALYSIS AND PLAN

The use of this site is industrial, in keeping with the City's plan for the Gladstone area. A plan for staged development of the site was defined because of market considerations and building size. This plan would permit future expansion of the development in accordance with the demand for industrial space. Prototype Building Two is proposed as the first stage of development. Future stages could include the construction of a high rise facility such as Prototype One, a second three level building, and air rights development over Prototype Two. This latter possibility might include a restaurant, motel or other commercial businesses. It was determined that Prototype Building Two should be placed on the western portion of the site, adjacent to the Northern Ohio Food Terminal. This is based on the need of the tenants to be near like businesses. It would allow their customers, who generally use competitive buying techniques, to have access to both the N.O.F.T. and Prototype Two. In addition, it permits a continuation of the practice of inter-buying among competitors in the event they run out of merchandise.

In evaluating the building and site for the design modification, certain street improvements were proposed (see Exhibit E3). These include widening the existing streets, Woodland Avenue and East 40th Street. A new three level street is provided to the south of the building. All ramping and the multi-level access street have been located in new or widened street rights of way.

Access to the site is provided by separate pedestrian and vehicular entrances. The major pedestrian entrance is from Woodland Avenue, with a secondary entrance from East 40th Street. Automobiles would enter and exit from Woodland Avenue, onto and from a ramp leading to the rooftop parking area. Trucks enter and leave the building from the new three level road. Ramps would give access to each level of the building. Covered rail facilities are provided by extending two rail sidings into level one of the building, with common train docks adjacent.

The detailed planning analysis which was made prior to the design of Prototype One formed the basis for this site plan as well. The findings are summarized in Chapter 2, Exhibits E1 through E5. (See also Appendix 2, Section E and Appendix 4.)

BUILDING DESCRIPTION

Prototype Building Two is designed as a three level facility with a total of 859,050 square feet. Space is allocated for industrial, building service, material handling, and car parking (see Exhibit E7). Approximately 35.5% of the space is rentable; all of this is industrial space for processing and warehouse use. Automobile parking is provided on the roof with a capacity of 470 cars.

The main building entrance is on Woodland Avenue with a secondary entrance on East 40th Street which relates to the Food Terminal. The entrances lead into a central core from which passenger elevators and stairways give access to all levels of the building. (See Exhibits E1 and E3.)

- The sub-grade level provides industrial space for warehousing or processing, and truck docking and maneuvering areas. (See Exhibit E2.)
- Level one provides industrial space for warehousing, or processing, truck circulation and docking areas, and rail sidings with dock areas. (See Exhibit E3.)
- Level two provides industrial space for warehousing or processing and truck circulation and docking space. (See Exhibit E4.)
- Roof level provides car parking, mechanical equipment penthouse and space for air rights development. (See Exhibit E5.)

Trucks can get to each building level via ramps from East 40th Street. Each tenant has his own private truck docks for loading and unloading and controls his own material handling. The building has a total of 184 docks and 26 holding spaces. Each tenant's docking space would be in direct proportion to the amount of industrial space he rents. An internal ramp system for fork lift trucks is provided for movement of materials between train docks and all building levels. (See Appendix 4, Section A.)

The basic structural system is poured-in-place, reinforced concrete. Bay sizes are 30' x 30' in production and dock areas, 30' x 60' and 60' x 60' in truck maneuvering areas. (See Appendix 4, Section A.)

Utilities and services would be provided to four access points on each level. Each tenant is responsible for bringing the utilities and services he needs from these access points to his own space. All such tenant installations would have to be executed to building standards and approved by the building owner. Generally, plumbing lines for cold water stacks would be brought to each floor for tenant use; hot water lines would go to toilet rooms and janitor spaces only. Industrial waste would be collected at two locations on each floor for incineration. Gas, electricity and power and telephone service would be brought to each floor. For purposes of environmental control, fans would be located in the mechanical penthouse. Tempered air would be distributed through a supply duct system to the vertical mechanical shafts, with each tenant responsible for installing his own ducting and variable volume air diffusers. Individual tenants would provide their own supplemental heating system, if required. Ventilation would be provided through fans located in the mechanical penthouse. (See Appendix 4, Section A.)

The building management functions of Prototype Two are greatly reduced as compared to Prototype One. There would be no need for central material handling or truck management service. The remaining functions are maintenance of the exterior and interior common areas and leasing operations. These could be carried on by a professional management service or an individual hired on a full-time basis.

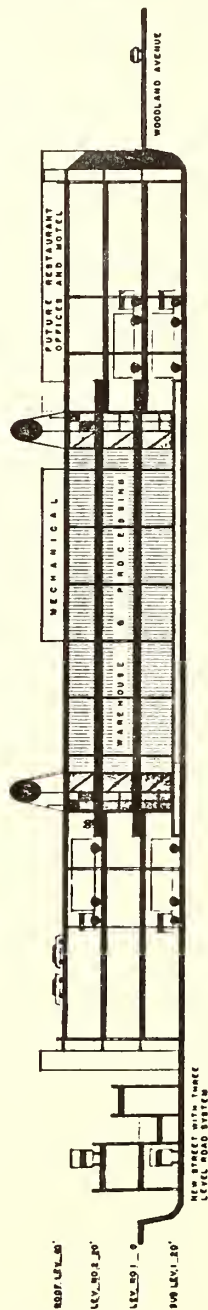
PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE TWO

SECTION

- WAREHOUSE & PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



NORTH SOUTH SECTION A-A



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

DATE: 11-24-64
BY: [signature]

EXHIBIT E1

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE TWO

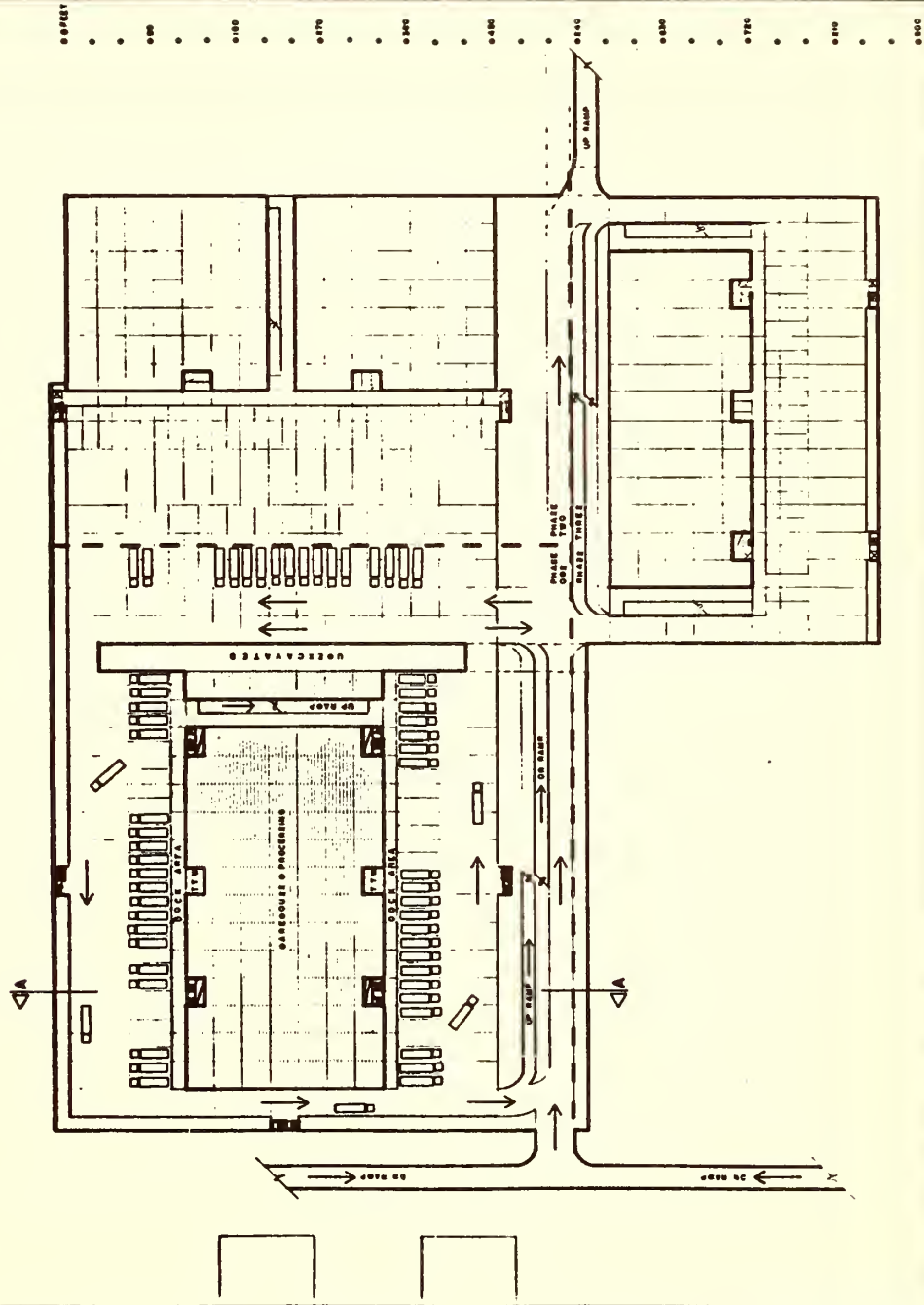
SUB-LEVEL I

- WAREHOUSE & PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER: 03-6-09056

EXHIBIT E2



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE TWO

LEVEL 1

- WAREHOUSE & PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION

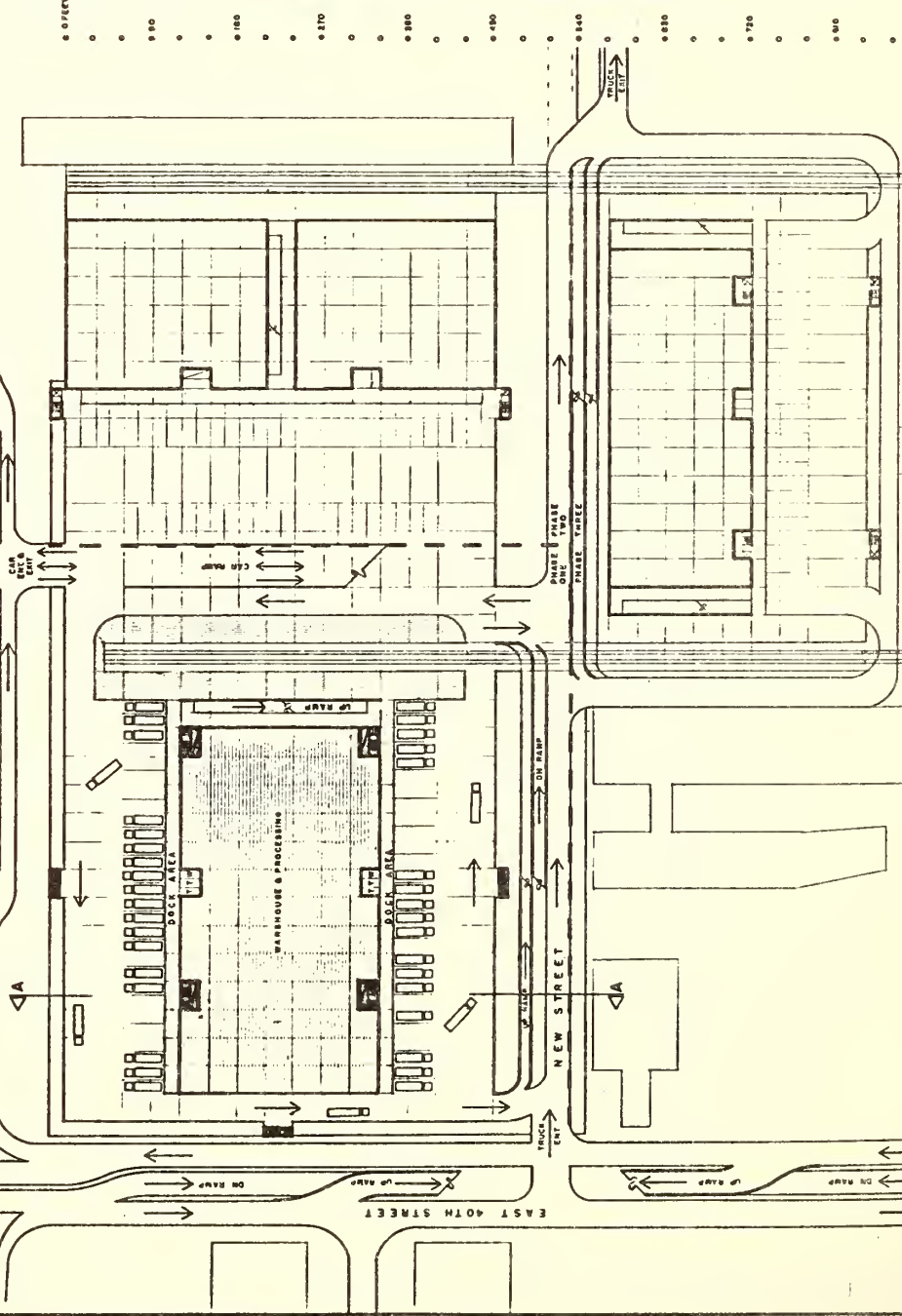


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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

100 SQUARE FEET
DATE: 6-24-60
EXHIBIT E3

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000

WOODLAND AVENUE



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE TWO

LEVEL 2

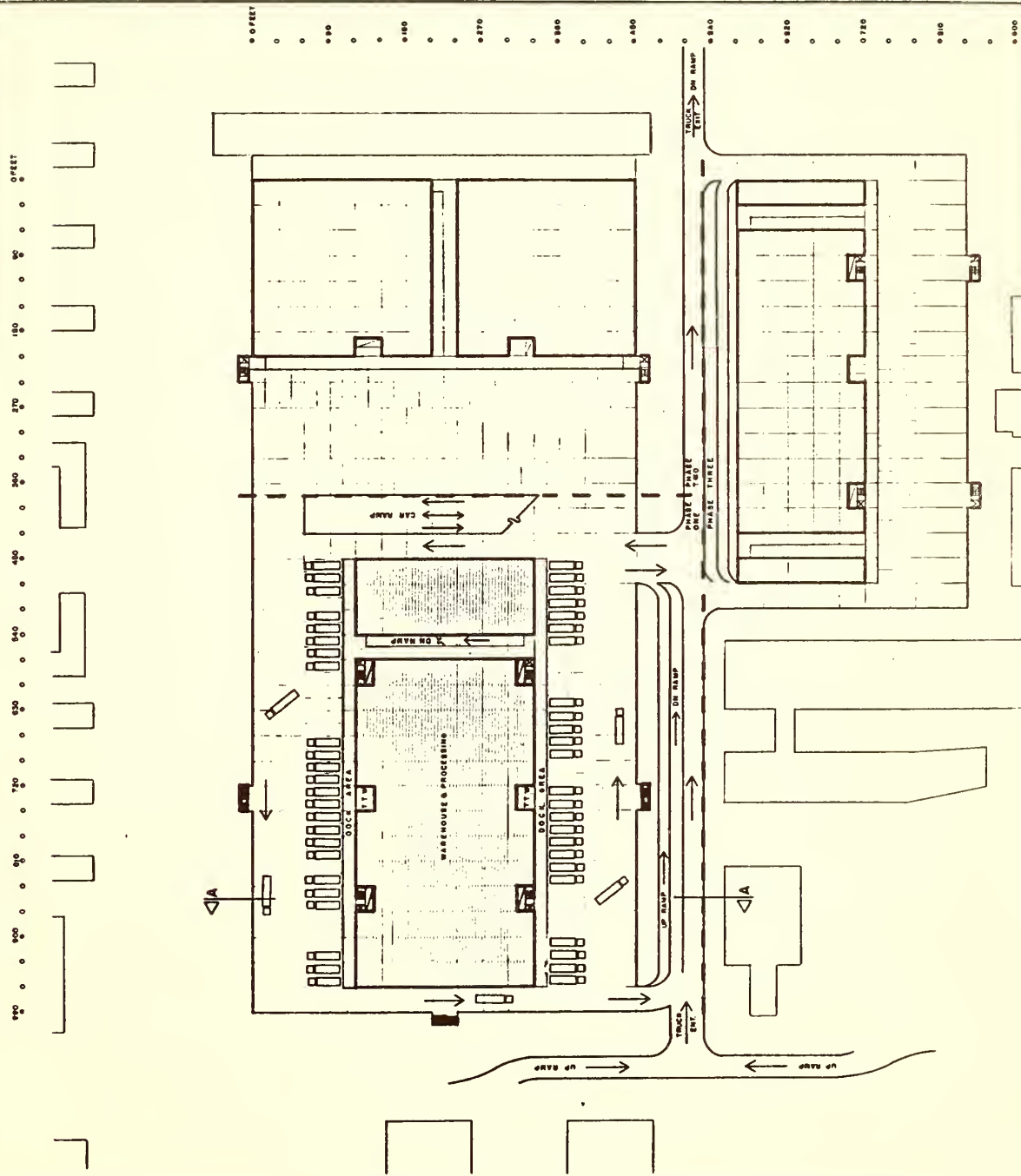
WAREHOUSE & PROCESSING
COMMERCIAL
DOCK AREA
VERTICAL CIRCULATION



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-0-09056

FOR REVIEW 44 77
DATE: 1 11

EXHIBIT E4



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE TWO

ROOF LEVEL

WAREHOUSE & PROCESSING

COMMERCIAL

DOCK AREA

VERTICAL CIRCULATION



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T/A PROJECT NUMBER : DS-6-D9056

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DATE: 6-19-64

EXHIBIT 5

0' 0" 10' 20' 30' 40' 50' 60' 70' 80' 90' 100' 110' 120' 130' 140' 150' 160' 170' 180' 190' 200' 210' 220' 230' 240' 250' 260' 270' 280' 290' 300' 310' 320' 330' 340' 350' 360' 370' 380' 390' 400' 410' 420' 430' 440' 450' 460' 470' 480' 490' 500' 510' 520' 530' 540' 550' 560' 570' 580' 590' 600' 610' 620' 630' 640' 650' 660' 670' 680' 690' 700' 710' 720' 730' 740' 750' 760' 770' 780' 790' 800' 810' 820' 830' 840' 850' 860' 870' 880' 890' 900' 910' 920' 930' 940' 950' 960' 970' 980' 990' 1000'

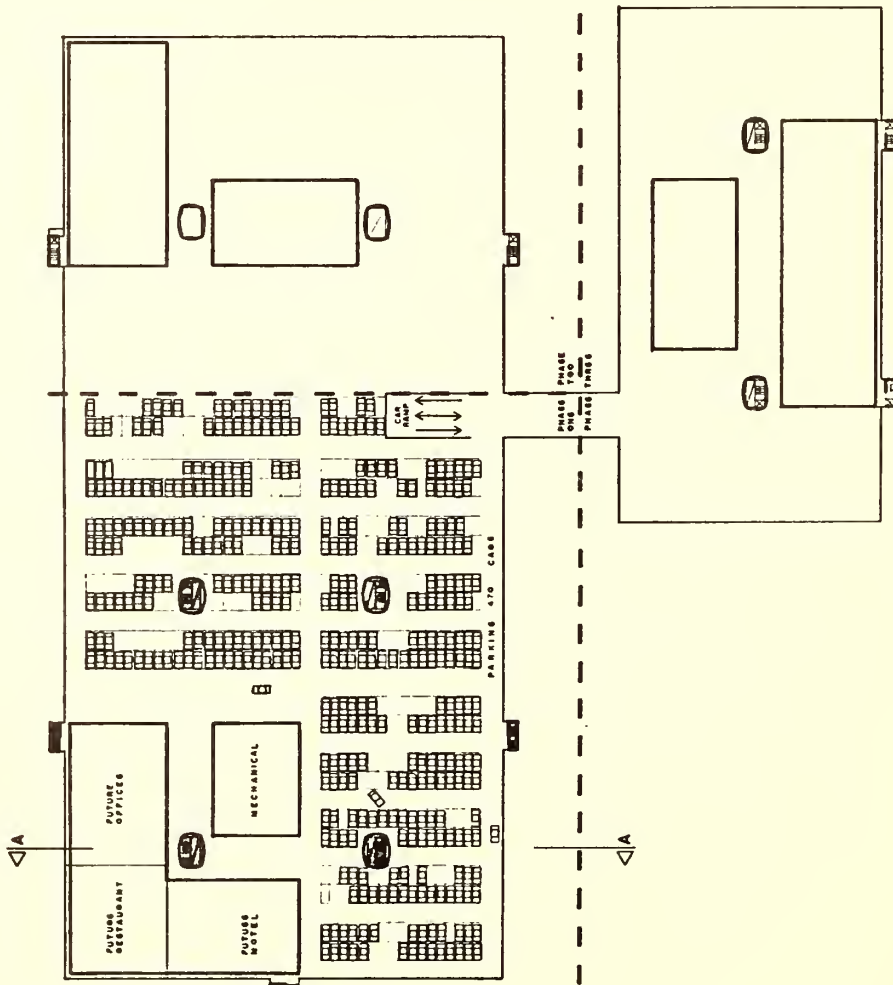


EXHIBIT E6
SUMMARY OF BUILDING CHARACTERISTICS

I. SITE

A.	Land Area	6.9 acres
B.	Building Coverage at Grade	92.6 %
C.	Gross Floor Area Ratio	2.9

II. BUILDING (see Exhibit E7)

III. SERVICE FACILITIES

A.	Car Parking Spaces	470
B.	Truck Docking Spaces	184
C.	Truck Holding Spaces	26
D.	Railroad	
	1. Sidings	2
	2. Car Spots	16
E.	Freight Ramps	2
F.	Passenger Elevators	7

IV. DENSITY (NO. OF EMPLOYEES)

Industrial (400 s.f./person)	750
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EXHIBIT E7
PROGRAM SUMMARY - PROTOTYPE TWO

Level	Square Feet Industrial		Square Feet Commercial			Square Feet Building Service				Square Feet Material Handling							Car Parking	Total
	Warehouse and Processing		Office	Motel	Restaurant	Public Circulation	Mechanical	Building Storage	Building Management	Railroad Dock	Truck Dock	Truck Loading	Truck Holding	Truck Circulation	Material Handling	Operation Control		
Sub-Level #1	110,100					2,400						60,630	5,170	112,050	1,800			292,150
Level #1	94,900					2,400				35,100		47,350		84,650	1,800			266,200
Level #2	100,100					2,400						55,300		106,450	1,800			266,050
Roof			19,800*	14,300*	13,200*	2,400*	13,500										184,500*	13,500
Car Ramp																	21,150	21,150
Sub-Total	305,100		19,800*	14,300*	13,200*	7,200	13,500			35,100		163,280	5,170	303,150	5,400		21,150	
Total	305,100			47,300			20,700						512,100				21,150	859,050
Group Percentage	100		43*	30*	27*	35	65			7		32	1	59	1		100	
Percent of Total Building	35.5						2.4						59.5				2.5	100

*Roof areas not included in calculations

+Includes truck docks

CONSTRUCTION COST ANALYSIS

An estimate of construction costs for Prototype Two was a necessary prerequisite to financial analysis and was made by Turner Construction Company, using a procedure similar to that used for Prototype One. Costs are shown separately for each major building element.

This allows for more detailed analysis of the construction costs and for the possibility of applying different sources of financing to various parts of the project.

- Off-site improvement cost includes all of the East 40th Street improvements (widening and access ramps), the new three level service street (from East 40th Street to East 51st Street) and the widening of Woodland Avenue (Exhibits E2, E3, E4 this chapter)

Excavation and Site Preparation	\$ 498,240.00
Retaining Walls	\$ 164,840.00
Paving on Grade	\$ 481,880.00
Raised Roadways and Bridges	<u>\$ 675,450.00</u>
Sub Total	\$1,820,410.00
Indirect Costs and Fees	<u>\$ 236,690.00</u>
TOTAL	\$2,057,100.00

- Building and site improvements

	<u>Rentable</u>	<u>Truck & Rail</u>	<u>Parking</u>	<u>Total</u>
¹ Site Work and Foundation	\$ 605,420.00	\$1,060,810.00	\$ 29,040.00	\$ 1,695,270.00
Structural Frame	1,700,010.00	2,835,000.00	118,440.00	4,653,450.00
Exterior Work	303,320.00	169,720.00	2,960.00	476,000.00
Interior Work	699,000.00	325,300.00	21,870.00	1,046,170.00
Elevators	160,000.00	120,000.00	-	280,000.00
Mechanical	610,200.00	1,065,600.00	42,300.00	1,718,100.00
Electrical	<u>297,000.00</u>	<u>378,640.00</u>	<u>14,800.00</u>	<u>690,440.00</u>
Sub-Total	\$4,374,950.00	\$5,955,070.00	\$229,410.00	\$10,559,430.00
Indirect Costs and Fees	<u>568,720.00</u>	<u>774,140.00</u>	<u>29,810.00</u>	<u>1,372,670.00</u>
Total	\$4,943,670.00	\$6,729,210.00	\$259,220.00	\$11,932,100.00

- ¹ The total cost of the site work and foundation is pro-rated to all three of the major building elements in direct ratio to the area of each.

In designing the building, steps were taken to reduce construction costs, as compared to Prototype One, in the following manner:

- Support and common services have been eliminated from the base building.
- Mechanical and electrical services can be installed without the need for a split beam and column structural system, since ceilings in this building are higher than those used in Prototype Building One.
- The cost of dewatering the site has been eliminated by having only one sub-level which does not reach the water level.
- The height of the building has been reduced, thereby, lowering the load requirements and eliminating the need for a floating slab foundation.
- Freight elevators have been eliminated from the building.
- Automobile parking is on the roof and utilizes the existing structure rather than a separate structure.
- The extent of mechanical and electrical systems has been reduced within the basic building.

It should be noted that these savings are offset somewhat by the higher cost of truck facilities, since these are provided on each level of the building.

FINANCIAL ANALYSIS

Findings Related to Objective 3

A detailed pro forma financial analysis was made for Prototype Building Two, based on design specifications and construction costs as projected for 1969-1970. The summary figures are presented in this chapter with detailed back-up material given in Appendix 4, Section B.

OPERATIONAL ASSUMPTIONS

This analysis was carried out in the same format as established for Prototype One. (See Chapter 3, Appendix 3, Section A.) Therefore, the basic assumption of giving the tenant certain unique services and facilities (see Chapter 3) remains, but the nature and extent of

these services have been modified in keeping with the market test findings and financial analysis of Prototype One.

- The rentable area is still defined in terms of net usable area, excluding parking, docking, holding, mechanical systems, elevators and public circulation areas such as stairways. This figure is used to compute the rent required to meet the annual cash requirements.
- A cost provision is made for a central building management service which would take care of leasing arrangements, building maintenance, taxes, insurance, etc. The central management responsibilities are somewhat reduced, since there is no central internal material handling and the central support facilities have not been included in Prototype Two.
- Modifications have been made in the building systems and design (see Chapter 4, Appendix 4) which are reflected in a lower construction cost per square foot.
- The concept of a multi-level development has been retained since the objective is to find an efficient way to use urban industrial land. However, the building height has been reduced to three levels, with truck docks adjacent to the production areas to meet the requirement of the potential tenant market.

FINANCIAL ASSUMPTIONS

The same financing package has been used for Prototype Two as was used for Prototype One (see Chapter 3). The financial picture did not change during the period between the preparation of these two sets pro forma statements. This financing package consists of 65% E.D.A. loan, 25% commercial bank mortgage loan and 10% private equity.

Project costs, financing packages and cash disbursements were assembled by major building segments following the same procedure as previously used. (See Appendix 3, Section A.) This permits detailed identification of all cash outflows and summarization on the basis of net rentable square feet. From this analysis, the rental rate required to break even was determined.

PRO FORMA STATEMENTS

Within the framework of these assumptions and the format established for Prototype One, some variations have been made in this financial analysis in order to test certain cost factors

- The costs of off-site improvements and land (which had been reduced from \$2.00 to \$1.25 per square foot) are included as part of the total project cost in Exhibit E1 of Appendix 4. However, neither of these costs is included as part of the cash flow analysis. The purpose is to test the effect on the rent, if the land is contributed by the City. A special addendum (see Exhibit E2, Appendix 4) shows the difference in rent when the land cost is included in the cash flow analysis.
- A special addendum (see Exhibit E10, Appendix 4) was prepared to show whether a private developer could get better financing by acquiring land at \$1.25 per square foot under urban renewal, but securing financing based on the value of the land at \$2.50 per square foot. This would remove the need for the developer to put up his 10% equity; but that savings is offset by higher financing and real estate tax costs resulting from the write-up in land value.
- A special addendum (see Exhibit E11, Appendix 4) was prepared which projects the annual tax revenues to the City from Prototype Two. The total is estimated at \$332,600.00 annually from real estate, personal property and city income taxes.

The general findings of this financial analysis can be summarized as follows:

Total Project Costs	\$16,489,760.00
Project Cost Per Square Foot of Constructed Space	19.20
Project Cost Per Square Foot of Rentable Space	54.05
Annual Cash Requirements for Mortgage Payments and Operations	1,828,600.00
Annual Cash Requirements Per Square Foot of Rentable Space -	
Including Land Cost, Breakeven @ 100% Occupancy	6.11
Not Including Land Cost, Breakeven @ 100% Occupancy	5.99

- The rental rate is beyond the rate which food industry tenant interviewees can afford.
- Land costs, at \$1.25 per square foot in Gladstone, comprise about 2.4% of the total project costs. These land costs are low for Cleveland because this site is within the Gladstone Urban Renewal area. However, these prices are still higher than current prices for suburban industrial land. The rental rate is about \$.12 per square foot less than the rental rate which includes the land cost. (See Exhibit E1 and E2, Appendix 4.) This amounts to less than 2% of the total rental figure.
- The cost of the off-site improvements is 12.5% of the total project costs.
- Construction costs of the building represent 85.1% of the total project cost. The high construction costs are the result of multi-level construction --- the need to put essential services on structure, the need to provide for adequate material handling facilities (train and truck docks), and the need to provide heavy floor load capabilities. The breakdown of major building parts is as follows:
 - a. Automobile parking - 1.8% of total project costs.
 - b. Truck docking and holding areas and train docking areas - 48.1% of total project costs.
 - c. Rentable areas - 35.2% of total project costs.

DEVELOPMENT CONSIDERATIONS

Findings Related to Objective 4

The financial analysis showed that Prototype Two is still too costly for private development and would require some form of government financial assistance. Therefore, discussions were held with federal and local officials as well as private developers and other interested parties to determine if there would be support for a joint effort. These discussions have brought out several factors which should be considered in the development of this facility.

- There are private developers who are interested in central city industrial developments. They recognize the City's need to retain industry and employment and are willing to work cooperatively as an advisor or as the developer with federal and local governments to develop this or similar projects.

- The upsurge of economic activity in the Negro community represents an avenue for possible development. The Hough Area Development Corporation is an organization which is oriented toward the establishment and growth of Negro owned and operated businesses and has been given an O.E.O. grant to pursue its goals. This multi-level building is a possible home for such industrial operations as may be established. Their participation would depend, in part, on federal funding of the multi-level facility. Another important factor is their need for advisory assistance in establishing and managing these operations and in training personnel. However, their interests lie in working with the automotive industry, because there are many opportunities for establishing Negro owned and operated businesses within the framework of this industry (e.g. retail parts outlets, manufacture of radios, small parts, etc.) and these businesses offer a potential for future growth. This represents a long term possibility which could not be explored in depth within the limits of this report.
- In addition to the previously identified need for space to replace that presently occupied by food distributors, there is a market for a cold storage facility in the Gladstone area. This was indicated in the Prototype One market test and by a private developer. This facility could be a major tenant in a multi-level facility, since it is essentially a warehouse operation and its material handling needs are more subject to regular scheduling. While this might not directly generate employment opportunities, it could serve to attract other tenants to this facility and to the Gladstone area.
- By increasing the total area of each building level, the tenant market can be opened to larger tenants who can occupy one level within the building instead of two.

DEFINITION OF BUILDING PROGRAM

Conclusions Related to Objective 1

This study has identified a potential market for new industrial space in the central city among food distributors --- the commission merchants, jobbers, purveyors and meat processor-wholesalers. This group is limited in size and financial resources and does not employ large numbers of people, but it does carry on an important function in the Cleveland area. The scope of this study did not permit an in-depth economic analysis of this element of the food industry and its future in Cleveland. However, it appears that many of the firms within this segment of the food industry cannot absorb a higher rent structure if they are forced to move to a new facility. These operations are relatively unsophisticated in their method of operation and could probably operate in older buildings, if adapted to their needs. A move to an area outside of Gladstone would be difficult for these firms to undertake on an individual basis, because the locational requirements of doing business dictate that they remain clustered. The center of the present cluster is the Northern Ohio Food Terminal; so long as this complex remains in Gladstone, the surrounding clusters of merchants and distributors will have to do likewise.

It appears that this group is limited in its potential as a tenant market for this space, since there is not a large number of them and some are limited in their ability to absorb higher rent. The tenant group should be redefined to be larger in scope, and to include other industrial groups.

BUILDING DESIGN

Conclusion Related to Objective 2

From the point of view of the food distributor tenant market, Prototype Two presents a functionally workable solution to the tenant requirements. However, it has not been possible to appreciably increase building efficiency despite the elimination of freight elevators and support and common services. The primary reason for low efficiency of Prototype Two is the provision for truck maneuvering space and docks on structure adjacent to the tenant's processing space.

However, in light of the financial and developmental considerations, the design of Prototype Two appears to be limited for the following reasons:

- The building does not meet the automobile parking or truck holding needs of the surrounding area, but is adequate only for those who would be tenants of the building.
- The building is designed for one industrial group and its market potential is limited.
- The need for a joint effort by the public and private sectors and the resultant financing considerations makes it desirable to identify the public segment of the project. This would permit private development of the industrial or production areas and government financing of the areas for public use (e.g. parking, docking, holding).

Therefore, it appears desirable to determine whether a prototype can be designed which would better meet these newly developed criteria.

FINANCIAL ANALYSIS

Conclusions Related to Objective 3

Private development of a multi-level facility, which includes the full range of necessary services is not economically feasible at this time in Cleveland, since a private individual cannot build and operate this facility competitively in the current market and make a profit.

However, the alternative of government assistance remains to be explored. It appears that the rental rate for the production areas could be brought down to a competitive level, if government funds would be used for a portion of the project. If this is true, then private parties might be able to develop and lease the production areas while government funds are used to develop the public circulation areas. Further analysis of alternatives for financing appear to be warranted and should consider the following factors:

- Develop more sources of public funding that will pay for truck and rail facilities as part of the off-site street improvements, thereby eliminating substantial capital costs from the rental rates.
- Develop design and construction concepts for the rentable levels which provide maximum cost efficiencies consistent with the needs of prospective tenants.

DEVELOPMENT CONSIDERATIONS

Conclusions Related to Objective 4

The private developers are essentially profit oriented and cannot, within their financial limitations, undertake ventures which will not provide a return on their investment. A project such as this one appears to be beyond the financial limitations of most private developers. It appears, however, that there is interest in working in conjunction with the government where such a cooperative venture is possible. The development problem is therefore one of bringing together the appropriate combination of private, quasi-public, and government interests which will be able to finance construction

The change in direction from a purely private development to an enterprise financed in part by government funds has made it necessary to determine whether there is a broad, public purpose to be served which would justify this expenditure. Several factors have been identified throughout this study and can be summarized as follows:

- The need to retain employment opportunities for Cleveland residents.
- The need to stimulate private industrial development in Cleveland and particularly in the Gladstone area.
- The need to give assistance to existing businesses and new firms who need newer, more efficient industrial space, but cannot afford the cost.
- The need for automobile parking and truck holding facilities in the Gladstone area to serve existing businesses and alleviate congestion.
- The need to maintain the City's tax base.

A facility which would house just one industrial group appears to have only limited market potential. However, the expansion of this facility to serve a larger, multi-industry market has more potential for development.

CHAPTER 5

PROTOTYPE BUILDING THREE

- A. OBJECTIVES
- B. STUDY METHODS AND FINDINGS
 - 1. SITE ANALYSIS AND PLAN
 - 2. BUILDING PROGRAM
 - 3. BUILDING DESIGN
 - 4. FINANCIAL ANALYSIS
 - 5. DEVELOPMENT CONSIDERATIONS
- C. CONCLUSIONS

As a result of the Prototype One and Two studies (see Chapters 2, 3, 4), the following major conclusions were defined:

- New multi-level industrial space is not economically feasible as a private development, because it cannot be operated competitively at a profit.
- Some form of financial assistance from federal and/or local government would be needed in order to develop a financially viable multi-level facility.
- If government funds are to be used, then the facility must serve the public interest. Such an interest encompasses the following elements:
 - a. To retain employment opportunities for Cleveland residents.
 - b. To stimulate industrial development in the Gladstone area.
 - c. To give assistance to existing business and new firms who need newer, more efficient space, but cannot afford the cost.
 - d. To serve existing adjacent businesses and alleviate congestion in the area by providing automobile parking and truck holding facilities.
- A broader tenant market should be defined, since the food industry is limited as a market for potential tenants. Most of the food processors are already committed to move to new suburban space. The distributors who cluster around the Food Terminal are faced with the possibility of having to move out of their present space, while their ability to select new space is limited by financial and locational factors.

Based on these conclusions, the major objective for the next stage of work was defined: To design a multi-level industrial facility which would accomplish the public goals and be suitable for use by a broad range of tenants, and to define the financial conditions in which it could be rented at rates competitive with the current market. From this, the following secondary objectives were defined:

1. To develop a site plan which would enable the facility to serve the surrounding area.
2. To define the building program in terms of a broader tenant market.
3. To bring the rental rate for industrial space down to a competitive level by the following methods:
 - a. Minimizing construction costs.

- b. Using government funds to finance development.
 - c. Increasing building efficiency.
- 4. To determine the financing requirements through a pro forma financial analysis.
- 5. To identify methods of development and implementation consistent with the financing requirements.

SITE ANALYSIS AND PLAN

Findings Related to Objective 1

The proposed site plan involves the entire 16.9 acres rather than a portion of this as was done in the earlier studies. (See Exhibit E1, this chapter.) In developing this site plan, consideration was first given to the truck holding and automobile parking areas, because of the congestion which exists in the area. An initial assumption or criterion was that these facilities should serve firms adjacent to the site, including the Northern Ohio Food Terminal as well as the new prototype facility. As conditions presently exist, there are virtually no holding or parking areas to serve the businesses in the area. It appears that the provision for such facilities, with the possibility of expansion in the future, could be a key factor in the development of this building as well as in stimulating the redevelopment of the entire Gladstone area. As will be seen from the site plan, this necessitates devoting a large portion of the project site to truck holding and automobile parking areas. A second factor was building and space economies. In order to realize full economies of space and construction costs, it is necessary to develop the entire site.

The various elements of the site plan can be summarized as follows. (See Exhibits E1 and E4.)

- Truck holding area: This is located on the western portion of the site, to be accessible to both the Northern Ohio Food Terminal and Prototype Three. In addition, the holding area could be increased in the future by the addition of land to the south so that this central area could serve future developments as well. Direct access from the holding area to the N.O.F.T. would be necessary. In order to provide this without crossing traffic, it is proposed that 40th Street be depressed so that trucks can pass from the holding area to the Food Terminal on a bridge over the street.
- Automobile parking: This is to be located adjacent to the Northern Ohio Food Terminal, Prototype Three and a proposed commercial - office and retail facility. This, along with the holding area, form a core from which the rest of the site and possibly the surrounding area may develop.

- Industrial space: This is located on the eastern portion of the site.
- Office-commercial facility: The plan provides for such a facility to be located adjacent to the site. It could house retail outlets, offices, restaurant and other commercial operations. Since such a facility could be built by private developers, it has not been included as part of the financial analysis and detailed design studies.
- Street improvements are recommended in relationship to the new demands created by this project. East 40th Street would be depressed for the flow of north-south traffic. A bridge at grade would permit direct access from the holding area to the N.O.F.T. Woodland Avenue would be widened to provide extra lanes for turning movements into the facility.
- Access to the site is provided by separate pedestrian and vehicular entrances. The major pedestrian entrance would be from Woodland Avenue; pedestrian bridges would link the parking garage with the prototype building. Automobiles could enter and exit the parking structure from Woodland Avenue and East 40th Street, respectively; a secondary, two way access point would be on East 40th Street. Trucks would enter the on-site access road from Woodland Avenue and could proceed from there to the holding area, the N.O.F.T. or Prototype Three.
- Rail access would be provided at grade level by running a siding in an existing right of way on the east side of Prototype Three.

The detailed planning analysis which was made prior to the design of Prototype One forms the basis of this site plan as well. The findings are summarized in Chapter 2, Exhibits E1 through E5. (See also Appendix 2, Section E and Appendix 5.)

BUILDING PROGRAM

Findings Related to Objective 2

Although the tenant mix was not known, certain broad categories of use were defined as a result of the Prototype One and Two studies. (See Chapters 1, 2, 3 and 4.)

- Distribution operations which require direct access to and control of truck docks, and a minimum of internal material handling.

- Cold storage, general warehousing and other operations which handle bulky goods and require direct truck access to docks.
- Light manufacturing operations involving high value added, with small bulk goods which can be transported in a vertical material handling system, and whose delivery requirements are relatively light.

BUILDING DESIGN

Findings Related to Objective 3

The design of Prototype Building Three evolved in response to tenant requirements (see previous discussion) as well as the overall objective of reducing the rental rate for the industrial space. In order to reduce the rental rate, the following general determinations were made:

- Truck holding and automobile parking should be in separate structures. This would allow for use of these facilities by others in the area, as previously discussed. It would also permit investigation of separate financing and development of these facilities, thus removing a cost element from the rental figure.
- Since a certain amount of government funds were known to be needed, it was decided that these should be applied to an identifiable area of the building. This area should contain the building services which would be commonly used by all tenants. In the final building design, this area is referred to as the central building core. By providing these systems, the building design concept would be comparable to a single level development in that each floor would be like a horizontal tract of land with all utilities and services available on one level.

The design concept of Prototype Three, which evolved as a result of these considerations, is summarized below and illustrated in Exhibits E2 through E6. Major functions are housed in four separate but inter-connected facilities:

- Automobile parking garage.
- Truck holding area.
- Industrial building.
- Central building core.

AUTOMOBILE PARKING GARAGE

The automobile parking facility has 10 levels --- two below grade and eight above. Its total capacity would be 2188 cars. This figure has been based on the number of employees estimated for Prototype Three and the present needs of the N.O.F.T. for additional parking. In addition, it would serve the proposed commercial facility. There would be direct linkage between Prototype Three and the parking garage by a pedestrian bridge and the commercial structure would also be directly connected. The N.O.F.T. would be within easy walking distance for employees or customers. (See Appendix 5 for detailed description.)

TRUCK HOLDING AREA

The truck holding area consists of three slabs --- one at grade, one ramping down to sub-level one and one ramping up to level two. Its total capacity is 186 trucks. This combines the circulation and holding areas on one structure making construction more economical. It also permits use of the holding area for both the Food Terminal and Prototype Three.

Trucks would enter the site from Woodland Avenue. From the access road, trucks can either go directly to the N.O.F.T. by traveling through the holding area at grade, or to a designated holding space, or to a dock in the central building core. There is access from the holding area to the Prototype Three docks at sub-level one, level one and level two. On-site truck circulation would be controlled by a central management service. There would be a control station located near the truck entrance, manned by a person having electronic communication with each holding and dock area.

PROTOTYPE BUILDING THREE

Because of the broadly defined potential tenant market, the building program recognizes that the detailed requirements of each tenant would differ and are unknown. Therefore, the building must be flexible so that each tenant can achieve his unique requirements. This building provides basic shell industrial space with provisions for the tenant to make his own leasehold improvements.

There are five levels in this building; one below grade and four above. The central building core will contain freight and passenger elevators and mechanical and electrical utility risers. The actual industrial space would be constructed around the central building core. The total amount of rentable industrial space is 1,745,900 square feet which is 56% of the total usable surface area of all functions. (See Exhibit E8.)

Truck docks are provided in the central building core on sub-level 1, level 1 and level 2. Each dock area is directly accessible from the adjacent production area and from the holding area, but there is no internal truck circulation between levels of the building. The truck docking system has been designed to meet a variety of tenant requirements previously described in the building program.

- Sublevel 1: Cold storage and general warehousing were thought to be possible uses for this level. Truck docks would serve the tenant in the adjacent area and would be under the tenant's control.
- Level 1: The assumption has been that tenants on this floor would require flexible scheduling and direct access to truck docks because of handling bulky goods or frequent truck deliveries and shipments. One specific tenant group anticipated for this floor is the 40th Street Merchants. Provision has been made for docks for small trucks at grade along the outer western side of the building in addition to the docks in the central building core, giving tenants in this part of the building truck access on two sides. This is for tenants with exceptionally high service requirements such as the food distributors. Each tenant would be directly responsible for scheduling the use of his docks.
- Level 2: Tenants who sell or manufacture a small product and whose truck dock use can be easily scheduled would be located on levels 2, 3 and 4. The truck docks in the central building core at level 2 would be for their common use with scheduling handled by a central management service.

A rail spur track could run along the outer eastern side of the building. Because the nature and extent of use is unknown, the docks have not been provided as part of the building or its costs. However, there is space for docks to handle up to 18 railroad cars.

The major building systems can be summarized as follows:

- Structural: Building construction would be poured-in-place, reinforced concrete at all levels. Generally, shell space is provided so that each tenant can make the improvements necessary for his use, with appropriate finishes and materials. Bay sizes, ceiling heights, and floor loads have been determined so as to permit the maximum flexibility in use of space for processing and warehousing, considering such factors as storage of materials, production flow, and size of equipment. Bay sizes are 30' x 30' in production and dock areas, 30' x 60' and 60' x 60' in truck maneuvering areas.
- Mechanical and electrical systems: All major utility lines will run within each of the 5 vertical shafts located in the central building core, with access points at each floor. Each tenant would be responsible for bringing the utilities and services he needs, horizontally from the access points to his own space. All such tenant installation would have to be executed to building standards and be approved by the building owner.
- Material handling system: Vertical movement of goods within the building would be by freight elevators which are located in the vertical shafts in the central building core. There would be ten freight elevators each serving all levels of the building, for these purposes:
 - a. To connect level 2 truck docks to tenants on levels 3 and 4.
 - b. To move goods between the train area and all levels.
 - c. To connect those tenants where inter-buying relationships exist.Horizontal material handling would be accomplished by use of fork lift trucks using standard wooden pallets.

STAGING PLAN

It is recognized that there may not be an actual market for this amount of space or that financial considerations may limit the initial investment which can be made. Therefore, a plan for staged development has been defined.

- **Holding area:** It is recommended that the entire three levels of holding be constructed. This would alleviate the congestion which presently exists in the area. Further, it is anticipated that staged construction of this segment of the project could not be accomplished efficiently, since construction of later stages would disrupt use of the existing holding area.
- **Parking garage:** As shown in Exhibits E2 and E3, the two sublevels of the parking garage are below the grade level holding area and adjacent to the sublevel of holding. Since the holding area is above part of the two parking sublevels, these parking levels would have to be built as part of the first stage of development so as not to disrupt the holding facility at a later date. The number of levels to be constructed above grade would be determined by the actual market created by the industrial space as well as the market in the surrounding area.
- **Industrial space and central building core:** Several alternatives for staged development exist and would be compatible with the stages for the parking and holding areas.
 - a. Construct the sublevel and either one or two levels above grade. Air rights could then be available for future development of industrial space, which could utilize the services provided in the central building core.
 - b. Construct up to five levels of either northern or southern half of the building including the access from the holding area to the truck docks. The central building core would be built proportionately to serve the industrial space.
 - c. Construct up to 5 levels of the western half of the building including the access from the holding area, with the building core built up proportionately to serve the industrial space.

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

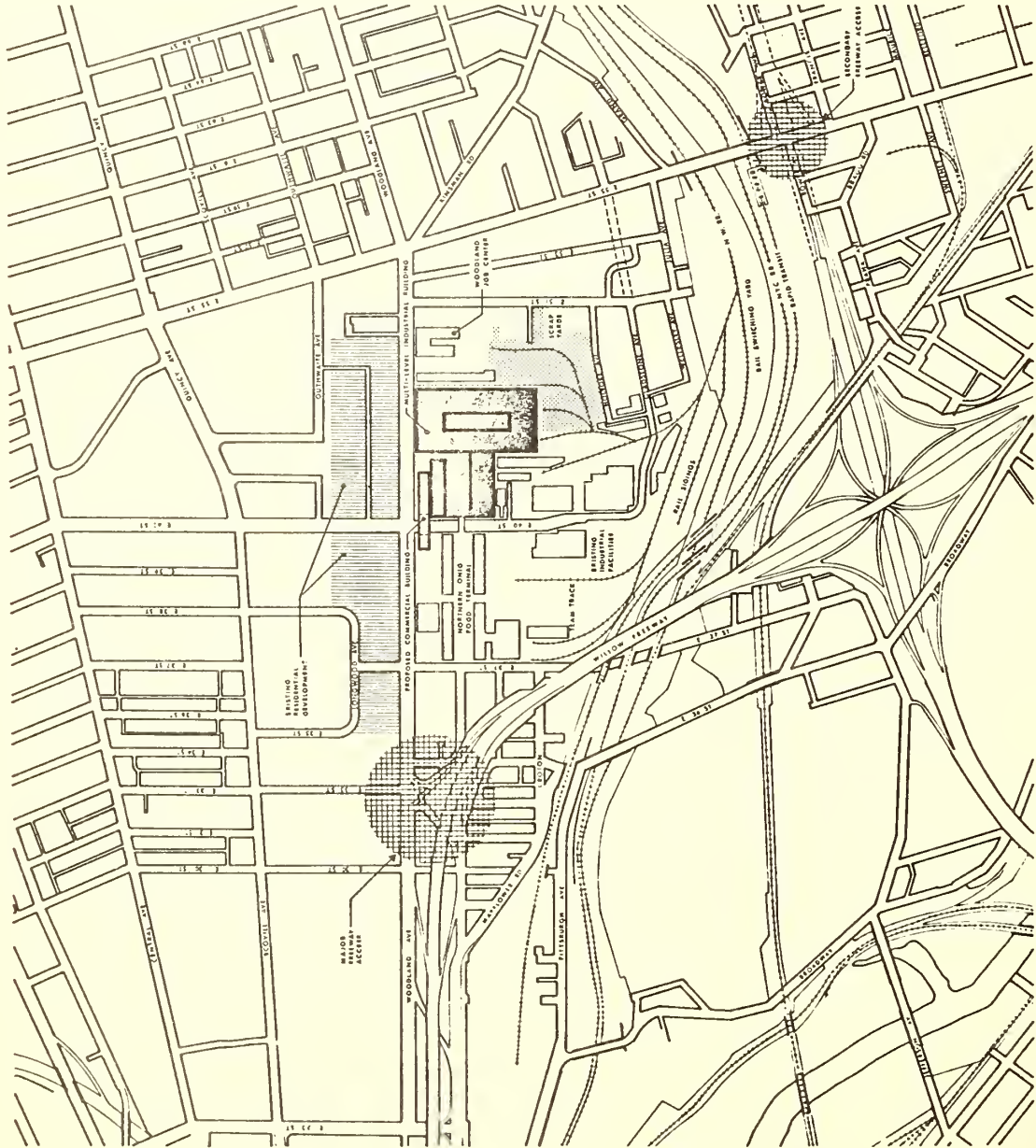
PROTOTYPE THREE

SITE PLAN



PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
I/A PROJECT NUMBER : 03-0-09056

JOB NUMBER 03-0-09056
DATE: June 5, 1965
EXHIBIT E1



PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY
PROTOTYPE THREE

SECTIONS

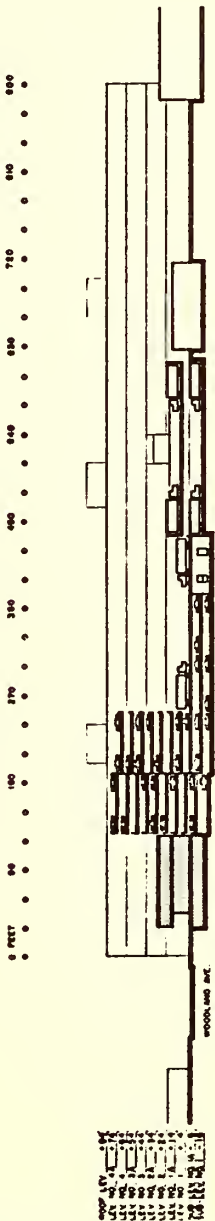
- INDUSTRIAL
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



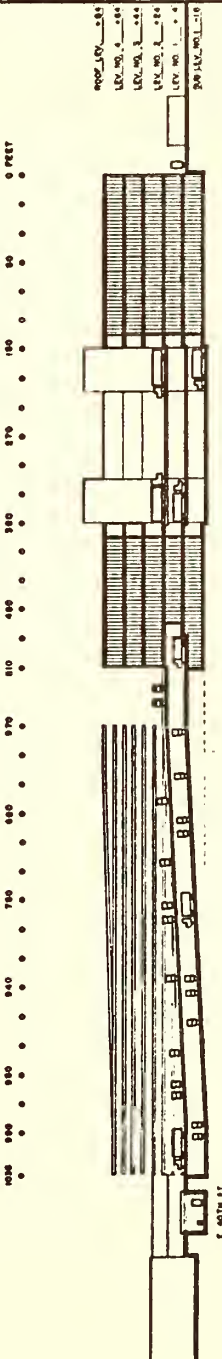
PREPARED FOR THE CITY OF CLEVELAND UNDER
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ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

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DATE: 10/15/67

EXHIBIT E2



NORTH - SOUTH SECTION A-A



EAST - WEST SECTION B-B

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE THREE

SUB-LEVEL I

- INDUSTRIAL - WAREHOUSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



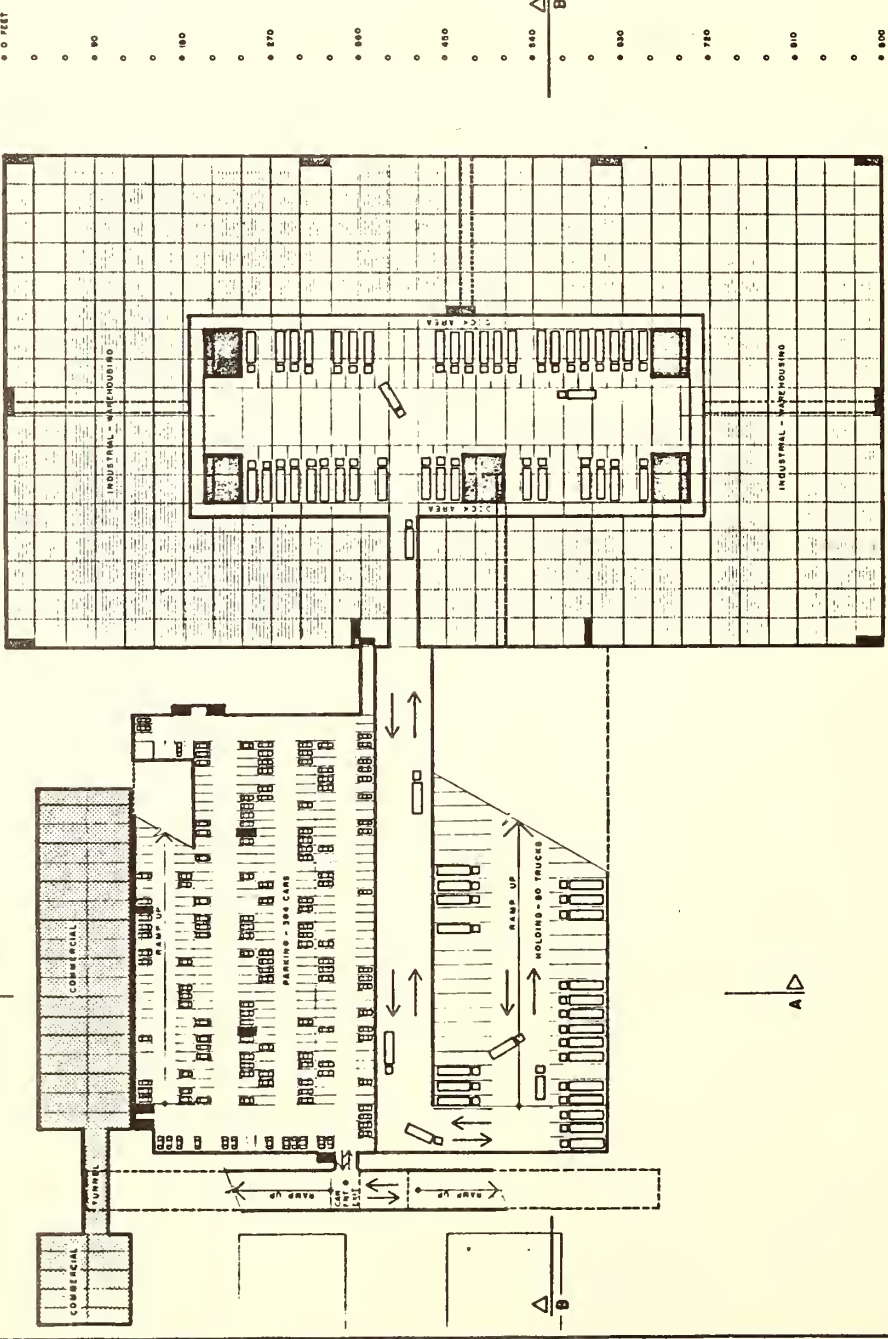
PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 63-6-09036

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EXHIBIT E3

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A



A

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE THREE

LEVEL I

- INDUSTRIAL - DISTRIBUTION
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER 1 03-6-09056

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DATE: JULY 15, 1963

EXHIBIT E4

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PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE THREE

LEVEL 2

- INDUSTRIAL - PROCESSING
- COMMERCIAL
- DOCK AREA
- VERTICAL CIRCULATION



PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

108 SERIES 44 71
DATE: April 1969
EXHIBIT 5

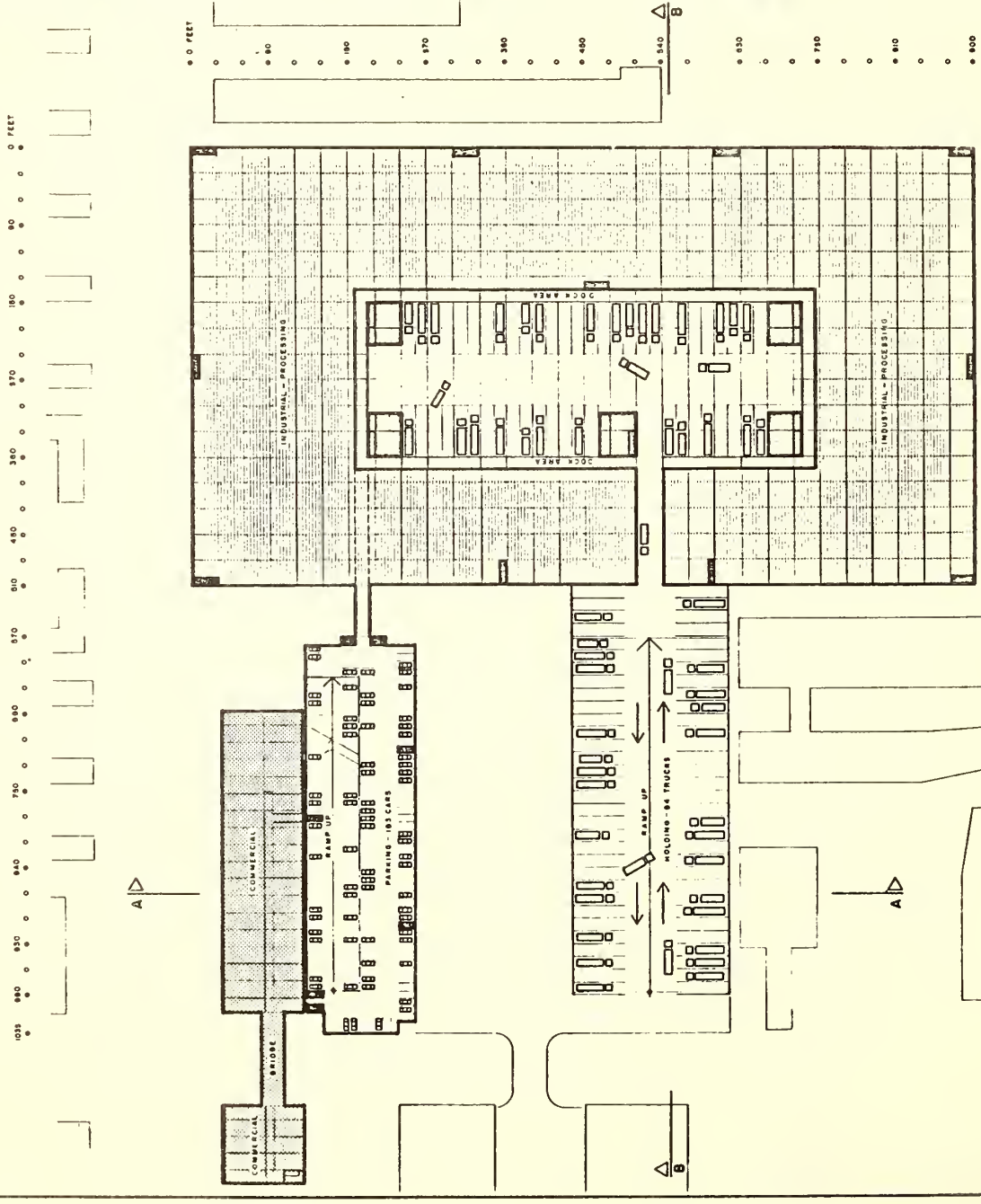


EXHIBIT E7
PROGRAM SUMMARY

I.	SITE	
A.	Land Area	16.9 acres
B.	Building Coverage at Grade	81.3 %
C.	Gross Floor Area Ratio	4.1
II.	BUILDING (see Exhibit E8)	
III.	SERVICE FACILITIES	
A.	Car Parking Spaces	2188
B.	Truck Docking Spaces	202
C.	Truck Holding Spaces	186
D.	Railroad	
	1. Sidings	1
	2. Car Spots	18
E.	Freight Elevators	10
F.	Passenger Elevators:	
	Central Building Core	4
	Parking Garage	4
IV.	DENSITY (No. of Employees)	
A.	Industrial (500 s.f./person)	3491

EXHIBIT B8
PROGRAM SUMMARY - PROTOTYPE BUILDING THREE

Level	Sq. Ft. Industrial			Sq. Ft. Commercial			Sq. Ft. Building Service				Sq. Ft. Material Handling							Sq. Ft. Car Parking	Total Sq. Ft.
	Warehouse, and Distribution	Processing	Bank	Reinforced	Office	Public Circulation	Mechanical	Storage	Building Management	Truck Dock	Truck Loading Position	Truck Holding Position	Truck Circulation	Material Handling	Operation Control				
Sub-Level #1	343,600		47,474*			10,000	5,000			10,650	45,600	27,900	85,550	6,400			120,000		654,700
Sub-Level #1A																	120,000		120,000
Level #1	320,700		28,875*			8,800	5,000			18,300	60,300	104,400	126,200	6,400	150		58,000		708,250
Level #1A																	58,000		58,000
Level #2	343,600			47,474*		8,800	5,000			10,650	45,600	32,400	52,700	6,400			58,000		563,150
Level #2A																	58,000		58,000
Level #3	369,000					2,500	5,000							2,500			58,000		437,000
Level #3A																	58,000		58,000
Level #4	369,000					2,500	5,000							2,500			58,000		437,000
Level #4A																	58,000		58,000
Penthouse							10,000												10,000
Sub-Total Sq. Ft.	1,745,900		76,349*	47,474*		32,600	35,000			39,600	151,500	164,700	264,450	24,200	150		704,000		3,162,100
Total Sq. Ft.	1,745,900		123,823*				67,600						644,600				704,000		3,162,100
Group Percentage	100%					48%	52%			6%	23%	26%	41%	4%	0.1%		100%		
Per Cent of Total Project	56%						2%						20%				22%		100%

* Area Not Included in Cost Calculations or Financial Analysis

CONSTRUCTION COSTS

Construction costs have been established for each major segment of the project using a system similar to that used in the earlier studies. (See Chapter 2.)

- Off-site improvement costs include the depression of East 40th Street and the bridge over the depressed street to connect the holding area with the Northern Ohio Food Terminal and the widening of Woodland Avenue.

Excavation and Site Preparation	\$387,800.00
Retaining Walls	22,900.00
Paving on Grade	144,800.00
Bridge	25,000.00
	<u>\$580,500.00</u>
Indirect Costs and Fees	<u>\$ 75,500.00</u>
	<u>\$656,000.00</u>

- Industrial space, central core, car parking, holding areas costs are shown separately below. The breakdown given below is not directly comparable to that used in earlier studies, because of the differences in the design concept. The land cost shown for each segment is based on the cost for the land occupied by only that function.

	<u>Industrial Space</u>	<u>Central Building Core</u>	<u>Holding Area</u>	<u>Parking Garage</u>	<u>Total</u>
Site Work and Foundations	\$ 2,385,000	\$ 526,000	\$ 406,000	\$ 606,000	\$ 3,923,000
Structural Frame	9,481,000	1,390,000	633,000	3,470,000	14,974,000
Exterior Work	2,284,000	-	13,000	101,000	2,398,000
Interior Work	3,335,000	258,000	63,000	646,000	4,302,000
Mechanical and Electrical	<u>3,679,000</u>	<u>2,873,000</u>	<u>221,000</u>	<u>1,369,000</u>	<u>8,142,000</u>
	\$21,169,000	\$5,047,000	\$1,336,000	\$6,192,000	\$33,739,000
Indirect Costs and Fees	<u>2,756,000</u>	<u>657,000</u>	<u>199,000</u>	<u>805,000</u>	<u>4,417,000</u>
Sub Total	\$23,920,000	\$5,704,000	\$1,535,000	\$6,997,000	\$38,156,000
Land Cost	<u>430,000</u>	<u>144,000</u>	<u>198,000</u>	<u>151,000</u>	<u>923,000</u>
Total	\$24,350,000	\$5,848,000	\$1,733,000	\$7,148,000	\$39,079,000

FINANCIAL ANALYSIS

Findings Related to Objective 3

Based on the findings of the previous studies, it was known that government funds would be needed to finance a portion of the total project costs. The characteristics of the project are such that it could qualify for a loan or direct grant under the Economic Development Act of 1965, as amended.

FINANCING ASSUMPTIONS

Certain assumptions were made as to sources of financing and ownership for each segment of the facility (see Exhibit E1, Appendix 5); based on the E.D.A. requirements for local government participation and the goal of achieving combined federal, local and private involvement.

- A combination of direct E.D.A. grants to the City of Cleveland, E.D.A. loans at 4 3/4%, City bonds, and private sources have been arrived at as the method of financing construction.
 - a. It was initially hoped that the industrial space could be developed using the financing package consisting of private equity, commercial bank loan and E.D.A. loan. However, a preliminary analysis of project costs showed that this package would result in a rental rate above the market level. Therefore, it was determined that construction of this portion of the project would be financed by a package consisting of 90% E.D.A. loan and 10% equity from local sources.
 - b. Construction of the parking garage is to be financed by the City using revenue bonds or general obligation bonds.
 - c. Construction of the holding area and central building core would be financed by direct E.D.A. grant to the City of Cleveland.

Costs of operating and maintaining the central building core would be borne entirely by Prototype Three tenants.

- Seventy-five per cent of the costs of maintaining and operating the holding area would be borne by Prototype Three tenants and the rest by outside users, possible through payment of a fee.
- The cost of land for each segment of the project is computed as part of the project cost for that particular segment.
- The parking structure has been analyzed as a separate self-supporting operation, to show the cash requirements necessary to service the debt.
- The cost of off-site improvement would be borne by the City as part of its contribution to the total project. These costs have not been included in the financial analysis.

PRO FORMA ANALYSIS

The major findings of the pro forma cash flow analysis are summarized below, with details given in Appendix 5, Section B.

	<u>Industrial Building</u>	<u>Central Building Core</u>	<u>Holding Area</u>	<u>Parking Garage</u>
Total Project Costs	\$27,220,000	\$6,533,000	\$1,917,000	\$7,987,000
Total Constructed Square Footage	1,745,900 ¹	326,500	165,600	674,600
Project Costs Per Constructed Square Foot	\$15.59	\$20.01	\$11.58	\$11.84
Annual Cash Requirements	\$ 2,911,000	\$ 275,000 ²	\$ 37,000 ²	\$ 930,000
Annual Cash Requirement Per Square Foot of Rentable Space	\$1.82	- 3	- 3	\$35.00/ month/parking space

¹ This figure is the gross industrial space and is the basis for computing the rental rates.

² Does not include financing costs, since this is direct grant.

³ Is included in industrial building rental rate.

The financial analysis of the industrial building rentable levels, central building core, and truck holding and circulating area indicates that annual rentals of \$1.82/square foot would have to be charged in order to provide annual cash flow requirements for operating, maintaining, and managing the proposed facility. This rental rate assumes 100% occupancy which is probably unrealistic; however, it provides a bench-mark by which to measure any level of occupancy since the rental rate required to break even is in direct proportion to the occupancy level. The following table shows the annual break-even rentals at various occupancy rates:

	<u>Average Rented Space</u>	<u>Annual Rental Per-Square Foot</u>
100% Average Occupancy	1,745,900 square feet	\$1.82
90% Average Occupancy	1,571,310 square feet	\$2.02
85% Average Occupancy	1,484,015 square feet	\$2.15

A return on investment factor was not included in the rental rate, since 90% of the funding will be in the form of a federal loan, and the remaining 10% provided by local, presumably non-profit, sources.

The feasibility of constructing a 2,188 car parking facility has been evaluated on the basis of required annual cash disbursements, without benefit of an accompanying market demand study. Utilizing this approach, determination has been made of the minimum revenue that must be generated in order to service the debt and cover normal operating cash disbursements.

Possible financing arrangements were discussed with a local financial organization to determine which approach would offer the most favorable terms, given the existing money market conditions. Based on these discussions, three schedules are given using both City of Cleveland General Obligation Bonds and Revenue Bonds. (See Appendix 4, Exhibit E4.)

Cash requirements have been converted to a charge per space basis which represents the minimum amount of revenue that must be generated to cover annual cash disbursements. Included in these cash requirements is a management fee of \$25,000.00.

At a break-even point, the charge per space per month ranges from a high of \$37.00 to a low of \$35.00, depending on the mode of financing used. This means that each of the 2,188 spaces must generate at least \$35.00 per space every month. The competitive conditions existing in the Gladstone vicinity have parking rates at \$.30 the first hour, \$.20 each additional hour; \$1.00 per day; \$20.00 monthly permit. Revenue expectations would seem to be less than the minimum required to achieve this break-even point, but this is difficult to evaluate without the benefit of a market demand study.

DEVELOPMENT CONSIDERATIONS

Findings Related to Objective 5

Discussions were held with an industrial developer and an industrial realtor to ascertain their reactions to the Prototype Three rental rates within the context of the current market. Both felt that the rental rate is too high to be competitive with both suburban and central city space. The developer indicated that a rent of \$1.50 per square foot at 80% occupancy would possibly be marketable. The realtor thought that a rental rate of \$.90 per square foot would be necessary to attract tenants to the Gladstone area. Both pointed out certain relevant factors about the current situation in Cleveland:

- There is a large amount of vacant land available in suburbs for industrial development.
- There has been little or no multi-level industrial construction during the past several years because this type of construction is too costly and the conventional type of multi-level building does not lend itself to the efficient operation of most industrial processes.
- The Gladstone area is not attractive to industry because of environmental problems. Those who are presently located there generally are either paying a very low rent or have a specific need for that location.
- The current (1969) rental market in the Greater Cleveland area is \$1.25 to \$1.75 per square foot for new suburban space and \$.65 to \$1.00 for space in older existing buildings in the central city.
- An upward trend in rental rates for new space has been identified because of rising construction costs and higher interest rates.

With private development eliminated from consideration as a result of the Prototype Three financial analysis and the earlier studies, the focus here is on development possibilities within the previously defined limitations of the financing requirements. It appears that further steps toward implementation would involve:

- .. Test of conditions in other cities.
- .. Possibilities for development in Cleveland.

CONDITIONS IN OTHER CITIES

The original reason for this study was to test the multi-level building as a high density use for urban industrial land. While this building concept is not economically feasible in Cleveland, it remains to be tested in other cities. Certain variable conditions have been identified which would have to be tested in other cities in order to determine whether Prototype Three, or any other of the design studies would be feasible under a different set of conditions. These are:

- Construction cost.
- Current rental rates.
- Market for new industrial space.
- Relationship of the central city to surrounding suburbs in terms of land cost, land availability, proximity and access, and labor force.

If the above conditions are such as to make multi-level industrial construction economically feasible, there are benefits to the City in terms of more efficient use of land and a higher tax return.

An analysis was made of the annual tax revenues to Cleveland from the Gladstone site (see Exhibit E9). This compares the tax yield from a single level building to the Prototype Three facility using current local tax rates. The Prototype Three figures are based on the design specifications and financial analysis previously described. The single level facility is based on the currently used standard of 40% building coverage of the site, and a construction cost of \$11.00 per square foot. Both assume one employee for every 500 square feet of industrial space with an average salary of \$8700 per year. The multi-level building gives the City tax revenues of approximately \$1,000,000 more than the single level building.

EXHIBIT E9

COMPARISON OF ANNUAL TAX REVENUES FOR CITY

SINGLE-LEVEL BUILDING (40% coverage of site)

REAL ESTATE TAX¹

Total Tax:	
Land (value of \$923,000) =	\$ 23,100
Building & Site Development (value of 3,689,500) =	92,400
	<u>\$ 115,500</u>

City Portion:

School & Library @ 47.2% =	54,500
Other City Purposes @ 36.1% =	41,700
Total	<u>83.3%</u>
	\$ 96,200

CITY INCOME TAX²

Estimated Number of Employees:	590
Estimated Annual Total Gross Pay:	5,133,000
Estimated City Tax Revenues @ 1%:	51,300

PERSONAL PROPERTY TAX³

115,500 x 0.8%:	900
TOTAL ESTIMATED ANNUAL TAX REVENUES	<u>\$148,400</u>

³Personal property tax: In the City of Cleveland General Fund between 1965 and 1968 (Est.), intangible tax receipts have varied from 0.1% to almost 0.6% of real property tax receipts. Intangible tax receipts have grown substantially each year. For the next five years, they will probably conservatively average between .6% and 1.0% of real property tax receipts.

PROTOTYPE THREE

REAL ESTATE TAX: ¹

Total Tax:	
Land (value of \$725,000) =	\$ 18,200
Building & Site Development (value of \$41,015,000) =	1,027,000
	<u>\$1,045,200</u>

City Portion:

School & Library @ 47.2% = \$	493,300
Other City Purposes @ 36.1% = \$	377,300
Total	<u>83.3%</u>
	\$ 870,600

CITY INCOME TAX²

Estimated Number of Employees: 3491	
Estimated Annual Total Gross Pay: \$30,371,700	
Estimated City Tax Revenues @ 1%:	\$ 303,700

PERSONAL PROPERTY TAX³

\$1,045,200 x 0.8%:	\$ 8,400
TOTAL ESTIMATED ANNUAL TAX REVENUES	<u>\$1,182,700</u>

¹Tax Rate: \$6.26/\$100 @ 40%

²Estimated number of employees based on 500 square feet per employee. Estimated average annual wage \$8,700.

DEVELOPMENT IN CLEVELAND

The concept of allowing for the possible combination of manufacturing, food processing and warehousing activities with a distribution system in a single facility, and marketing this facility at a rental rate that is competitive with existing rental rates is a unique marketing challenge. While in-depth market testing and demand analysis is beyond the scope of this feasibility study, the decision to proceed with the implementation of this project is dependent upon the willingness of major tenants to commit support, interest and an intent to lease space. Therefore, an in-depth market testing effort including the presentation of the Prototype Three design, along with the presentation of financing and management methods might be undertaken at an early date to serve as the primary basis for a decision to proceed with construction. This would involve contact with major employers in the area as well as smaller operations with a need for space. The objective would be to determine the nature and extent of the market and the financial ability and willingness to participate in development of the project. It is apparent that a combination of tenant commitments will be needed before the decision to proceed with construction can be finalized.

Alternative considerations relating to the identification and/or selection of a developer have been reviewed. The criteria for evaluating these alternatives is based upon a combination of factors, including:

- The capability to engage and to control project contractors in a manner most responsive to tenant requirements;
- The advantage of combining all stages of implementation with an on-going responsibility for marketing, management and general operations;
- The acceptance needed to improve the probability of attracting one or more major tenants; and,
- The eligibility to receive substantial federal assistance.

The possible alternatives are summarized below. There are, of course, other alternatives and combination of alternatives that might be organized; however, the financing package placed certain restrictions on the considerations.

In accordance with Public Law 89-136, Section 202, there are fewer alternatives available when extensive federal assistance is involved:

"Such assistance shall be extended to applicants, both public and private . . . which have been approved for such assistance by an agency or instrumentality of the State or political subdivision thereof in which the project to be financed is located, and which agency or instrumentality is directly concerned with problems of economic development . . ."

Within these limitations, the alternatives below are broad enough to span a wide spectrum of probability.

- Private development group: This could be composed of tenants or other interested parties. Such a group may have the best capability to engage and control project contractors, be the most logical group to combine all stages of implementation, and to gain the acceptance needed to attract tenants and to influence tenant participation in management of operations. However, it would not be eligible to receive the federal assistance needed to implement this project, thus making it impractical to consider a private group as a principal developer.
- Existing economic development corporation: There are presently two such bodies in existence, the Greater Cleveland Growth Corporation and the Hough Area Development Corporation.
- Formation of a new economic development corporation: The City of Cleveland could designate a new development corporation comprised of tenants, a developer, the City and other interested parties.
- City of Cleveland: There is some precedent for City ownership of the facility based on its ownership of port facilities, parking facilities, the airport, etc.

The methods which involve the City and/or an economic development corporation qualify for receipt of federal funds. Their possible weakness is a lack of experience in coordinating all phases of implementing a project of this magnitude including design, marketing, construction and operation. Attracting one or more major tenants will require professional real estate experience which may not be available within a public agency. It appears that this expertise can be achieved by hiring experienced staff personnel or contracting with a private development and management group. This would provide capability for all stages of implementation including continued management of the facility.

In accordance with Section 101 of Public Law 89-136 ". . . The amount of supplementary grant under this section for any project shall not exceed the applicable percentage established by regulations promulgated by the secretary, but in no event shall the non-federal share of the aggregate cost of any such project (including assumptions of debt) be less than 20 per centum of such cost . . ."

Based upon the financial program developed in this feasibility study, local project financing will be needed for the following project elements to the following extent.

1.	10% Equity for Rentable Industrial Space	\$ 2.70 million
2.	Parking Facility	8.00 million
3.	Off-site Improvements	<u>.15 million*</u>
	TOTAL	\$10.85 million or 23% of the total project cost

* 1/4 share of estimated off-site improvements within the urban renewal project cost.

Several alternative methods may be utilized to provide local project financing. (See Appendix 5, Section B.)

- Rentable Industrial Space: In addition to the 90 per cent loan and/or loan guarantee, local funds may be obtained from tenants as a participant in the organization of an economic development corporation or a foundation loan to such a corporation which would be unsecured.
- Parking Facility: Construction may be financed entirely by General Obligation or Revenue Bonds issued by the City of Cleveland.
- Off-site Improvements: May be financed as a part of the Gladstone Urban Renewal project.
- Marketing Activities: Cost of initial marketing may be paid by a potential developer on a speculative basis; paid by a major tenant who may wish to assist in the organization of a new economic development corporation; paid by the Greater Cleveland Growth Corporation as a portion of its program which is assisted by the Economic Development Administration; or financed by a private grant from Cleveland NOW or a foundation.

The City's role would be decisive in the implementation of this project, regardless of where the ownership or development responsibilities are placed.

The specific conclusions relating to the Prototype Three building design and program are summarized below. Since the conclusions relating to financing and development represent overall conclusions to the entire feasibility study, they are discussed in the CONCLUSION section at the beginning of the report.

CONCLUSION RELATED TO PROTOTYPE THREE PROGRAM AND DESIGN

Given the assumption that the facility should serve the existing adjacent buildings, the site plan takes on a different character than in previous studies. The on-site land use relationships change in that automobile parking and truck holding areas become relatively more important elements because they serve the area. Within this concept, these are best treated as separate structures rather than as part of an interrelated building unit. A new facility will work more efficiently if it helps to solve existing traffic congestion problems rather than operating as an independent unit.

Because of the size of Prototype Three and the constraints of the existing market for industrial space in Cleveland, it is better to program a facility for a broad potential tenant market. This should be oriented toward the characteristics of the operations (e.g. distribution, light industry, warehouse) rather than specific industrial categories (e.g. food, printing). The Prototype Three design does successfully accomplish the objectives of providing space for a wide range of industrial tenants, identifying the government financed areas of the project, and serving the adjacent area as well as building tenants. It is desirable to provide separate facilities for each major function such as automobile parking and truck holding. From a design point of view, these could be included as part of a single building concept. However, from a cost point of view, the inclusion of these facilities increases construction costs, decreases building efficiency, and results in a high rental rate. The design of separate facilities for these functions permits their financing and development by different sources and results in a lower rental rate for each industrial tenant.

Even with the use of government grants and low interest loans to finance construction and development of this facility, the cash flow requirements for Prototype Three result in a rental rate which is above the current market in Cleveland. It appears that this space would not be marketable at this rental rate. If a public need should be identified which justifies further government financing of a new multi-level facility (e.g. rent subsidies for tenants), then development can be accomplished by the methods described in Chapter 5.

Of the three design solutions which have been tested and are described in this report, (see Chapters 2 and 4) Prototype Three presents the best solution to the study problem. With public financing necessary in order to bring the rental rate near the current market, Prototype Three offers the most logical method of combining private, City government and federal interests. It appears that implementation of this design plan would be possible in the following circumstances:

- If a group of private firms have a locational requirement or recognize a social need great enough to justify their participation as tenants. This would involve their furnishing the necessary equity in a tenant corporation, and implies the ability to absorb a rental rate of \$2.00 to \$2.50 per square foot.
- If the City or federal government recognized a need to retain an industrial group in the Central City because of its contribution to the City's economy through taxes and employment or to stimulate the City's economy, this would also involve formation of a tenant group, but the equity would probably come from other local sources such as a non-profit foundation.

APPENDIX 1

PRELIMINARY RESEARCH AND PROGRAMMING

SECTION A - CHARACTERISTICS OF SELECTED NEIGHBORHOODS

SECTION B - COMMUNITY SUPPORT

SECTION C - SELECTION OF INDUSTRIES

SECTION D - PRELIMINARY BUILDING PROGRAM

SECTION E - SELECTION OF BUILDING SITE

Data on Cleveland and its selected neighborhoods provides an overview of employment trends and existing social and economic characteristics. The data is based upon an analysis of census information from the 1960 Census of Population, the Special Census of 1965 and the subsequent publication by the Bureau of the Census in 1967, Characteristics of Selected Neighborhoods in Cleveland, Ohio, April, 1965. Some controversy may exist concerning the accuracy of the survey data from the Special Census of 1965 due to the limited size of the sample and relative difficulties in securing information within central city areas. It was felt, however, that the basic trends and relative changes within the central city would be reasonably reflected by data available. The findings are summarized in Exhibits E1 through 5.

EXHIBIT E1
CHARACTERISTICS OF SELECTED NEIGHBORHOODS

	Population		Per Cent Change	Median Family Income		Median School Level	
	1960	1965		1960	1965	1960	1965
Glenville	86,008	85,441	(- 1%)	\$5,960	\$6,156	10.1 years	10.6 years
Hough	71,575	58,979	(-38%)	\$4,900	\$4,050	9.5 years	9.7 years
West Central	30,311	21,442	(-30%)	\$3,173	\$3,000	8.6 years	9.2 years
East Central	50,956	39,564	(-23%)	\$4,279	\$3,857	8.8 years	9.3 years
Kinsman	17,660	14,841	(-16%)	\$4,652	\$4,164	8.5 years	9.0 years
Goodrich	19,249	15,578	(-20%)	\$5,757	\$5,883	8.7 years	8.8 years
West Side	31,148	27,059	(-13%)	\$5,446	\$5,458	8.6 years	8.9 years
Broadway Industrial	19,334	14,255	(-27%)	\$5,697	\$6,185	8.8 years	8.9 years
Total Selected Neighborhoods	326,241	277,159	(-17%)	\$4,937	\$5,259	9.2 years	9.8 years
Total City of Cleveland	876,050	810,858	(- 8%)	\$6,325	\$6,895	9.6 years	10.3 years

Source: Characteristics of Selected Neighborhoods in Cleveland, Ohio, April, 1965, U.S. Department of Commerce, Bureau of the Census.

EXHIBIT E2

CHARACTERISTICS OF SELECTED NEIGHBORHOODS SKILLS OF EMPLOYED MALE RESIDENTS - 1965

	Total Male Work Force	Total Males Employed	Professional, Technical & Kindred	Managers, Officials, & Proprietors	Clerical & Kindred	Sales Workers	Craftsmen, Foremen & Kindred Workers	Operatives & Kindred Workers	Private Household Workers	Service Workers	Labors	Occupations Not Reported
Glenville	19,377	18,045	510	411	1,645	362	2,122	6,251	16	2,204	1,892	2,632
Hough	11,990	10,376	500	256	666	192	1,230	2,805	51	1,383	1,665	1,627
West Central	3,794	3,074	169	73	212	54	363	702	-	526	532	436
East Central	8,855	7,481	229	64	483	204	903	2,290	25	1,183	1,272	827
Kinsman	2,868	2,542	55	55	131	55	453	835	-	326	386	241
Goodrich	4,689	4,031	153	161	327	102	658	1,392	-	365	344	526
West Side	6,369	5,771	265	162	325	94	1,146	2,189	-	504	684	351
Broadway - Industrial	3,451	3,262	168	59	285	92	692	1,275	-	247	302	138
Total Selected Neighborhoods	61,393	54,582	2,049	1,241	4,074	1,155	7,567	17,739	92	6,738	7,077	6,778
Total City of Cleveland	203,783	190,539	13,277	7,811	18,246	8,536	37,306	58,605	288	15,507	15,638	15,342

Source: Characteristics of Selected Neighborhoods in Cleveland, Ohio: April, 1965

U. S. Department of Commerce, Bureau of The Census

EXHIBIT E3

CHARACTERISTICS OF SELECTED NEIGHBORHOODS SKILLS OF EMPLOYED FEMALE RESIDENTS - 1965

	Total Female Work Force	Total Females Employed	Professional, Technical & Kindred Workers	Managers, Officials, Proprietors	Clerical & Kindred Workers	Sales Workers	Craftsmen, Foremen & Kindred Workers	Operatives & Kindred Workers	Private Household Workers	Service Workers	Laborers	Occupations Not Reported
Glenville	13,175	11,538	899	144	1,765	305	193	1,765	1,316	3,354	128	1,669
Hough	7,611	6,279	495	38	748	178	89	1,078	837	1,877	13	926
West Central	2,254	1,707	164	18	328	43	18	249	200	486	24	176
East Central	5,450	4,691	245	12	514	86	24	637	1,176	1,372	73	551
Kinsman	1,523	1,273	30	13	132	47	17	250	242	344	13	187
Goodrich	1,956	1,797	57	37	403	61	33	583	29	306	24	265
West Side	3,009	2,668	162	41	551	219	32	706	81	649	32	195
Broadway - Industrial	1,753	1,607	195	37	390	85	8	381	12	402	4	93
Total Selected Neighborhoods	36,701	31,560	2,247	340	4,831	1,006	414	5,649	3,893	8,790	291	4,062
Total City of Cleveland	116,963	107,303	10,421	2,195	32,218	4,703	1,480	18,375	6,471	21,496	1,006	8,938

Source: Characteristics of Selected Neighborhoods in Cleveland, Ohio: April, 1965

U. S. Department of Commerce, Bureau of The Census

EXHIBIT E4

INDUSTRIAL EMPLOYMENT BY SELECTED NEIGHBORHOODS

	Food and Kindred Products			Machinery			Metal		
	1960	1965	Per Cent Change	1960	1965	Per Cent Change	1960	1965	Per Cent Change
Glenville	412	440	6%	2,356	1,091	(-54%)	3,706	2,720	(-27%)
Hough	521	140	(-73%)	1,147	664	(-43%)	2,954	1,429	(-52%)
West Central	200	42	(-79%)	151	164	8%	786	400	(-49%)
East Central	284	100	(-65%)	507	276	(-46%)	2,388	1,191	(-51%)
Kinsman	134	64	(-53%)	241	161	(-34%)	959	504	(-48%)
Goodrich	132	113	(-15%)	1,010	712	(-30%)	1,030	788	(-24%)
West Side	374	177	(-53%)	801	630	(-22%)	1,618	1,202	(-26%)
Broadway Industrial	212	100	(-53%)	470	402	(-15%)	1,444	929	(-36%)
Total Selected Neighborhoods	2,269	1,176	(-49%)	6,683	4,100	(-39%)	14,885	9,163	(-39%)
Total City of Cleveland	7,692	6,247	(-19%)	29,409	23,526	(-20%)	41,005	34,531	(-36%)

Source: Characteristics of Selected Neighborhoods in Cleveland, Ohio: April, 1965

U. S. Department of Commerce, Bureau of The Census

EXHIBIT E5

INDUSTRIAL EMPLOYMENT BY SELECTED NEIGHBORHOODS

	Printing and Publishing			All Manufacturing			Apparel	
	1960	1965	Per Cent Change	1960	1965	Per Cent Change	1960	1965
Glenville	493	391	(-21%)	11,973	8,503	(-29%)	771	440
Hough	260	191	(-27%)	8,054	4,212	(-48%)	489	332
West Central	103	61	(-41%)	1,854	1,109	(-41%)	103	109
East Central	152	88	(-43%)	5,204	2,883	(-45%)	300	150
Kinsman	30	34	13%	2,027	1,276	(-38%)	110	89
Goodrich	177	109	(-39%)	3,510	2,656	(-25%)	252	277
West Side	219	227	3%	5,339	3,866	(-28%)	296	353
Broadway Industrial	150	87	(-42%)	3,295	2,310	(-30%)	153	149
Total Selected Neighborhoods	1,584	1,188	(-25%)	41,256	26,784	(-37%)	2,474	1,899
Total City of Cleveland	8,005	7,466	(- 7%)	138,021	116,630	(-16%)	7,404	6,014

Source: Characteristics of Selected Neighborhoods in Cleveland, Ohio: April, 1965

U. S. Department of Commerce, Bureau of The Census

In the early stage of this project, it was determined that the attitude of community leaders would be relevant to the execution of this study and to the ultimate success of a multi-level industrial building. A series of personal interviews were held with community leaders representing Cleveland's business, industrial, and government sectors. The individuals selected for interviews represent a broad cross-section of interests and ideas so as to give a reasonable representation of current thinking with respect to the proposed project.

A total of 15 interviews, which are summarized below, were held with individuals representing the following community sectors:

- Real estate
- Construction
- Industry
- Foundations and Quasi-Public Organizations
- Utilities
- Railroads
- State Government
- City Government

BANKING

Two banking executives representing 75 years of collective experience in financing industrial expansion in Cleveland expressed concern regarding:

- The possible loss of image by an industry in not having a separate building.
- The growing tendency toward ownership in certain industries.
- The necessity to assure the compatibility of tenants.
- The limitation of the project within the City, rather than the entire metropolitan area.

They also indicated that a major factor in developing support for the building would be its relationship to good public and commercial transportation. They expressed recognition of the impact of deterioration of the central city economy on the metropolitan area. At least one major bank has expressed a definite interest in being informed of and involved in the project.

FOUNDATIONS

The Executive Director of the Cleveland Associated Foundation represents an organization which is deeply committed to seeking solutions to urban problems in Cleveland and which funds many projects directed at this effort. He felt that the development of a new industrial facility related to the disadvantaged areas of the central city would be helpful in improving and maintaining the economy in these areas. He pointed out that the major effort of the community leadership is currently directed toward education, housing and related sociological problems. The local government must be a major supporter of the project in order to generate support from other sectors of the community.

GREATER CLEVELAND GROWTH BOARD

The Executive Director and his assistant provided valuable assistance in assessing the specific industrial needs of the City. They noted that detailed financial aspects of the multi-level building in terms of rental rates and construction costs would be critical in generating enthusiasm for the project. They supported the continuation of this study. In an effort to retain industries in the City, the Growth Board had been working with several groups of industries on the formation of "block club" type improvement associations, and are encouraged by the enthusiasm for this effort. They also have considerable interest in the "walk-to-work" concept afforded by a central city location.

GREATER CLEVELAND GROWTH CORPORATION

This is an economic development corporation formed to stimulate and encourage industrial and economic development within the City. It is currently under contract to E.D.A. to perform specific studies in this area. Knowledge of these programs and goals has been important to insure that efforts would not be duplicated and to develop a coordinated plan. Its Executive Director expressed interest in the central city industrial concept and offered to provide assistance in the detailed study of potential markets in Phase II. Interest has been expressed in remaining involved in the project and this organization could possibly serve as the actual developer.

INDUSTRIAL DEVELOPMENT

Two executives in industrial development indicated that some potential would appear to exist for utilization of the proposed building for industries which prefer a central location. Concern was expressed about the potential incompatibilities which could develop in a mutli-tenant situation, unless the building were planned for related industries which already tend to group together. Concern for industrial development in the City was expressed with regard to the somewhat complex procedures required for rezoning, parking expansion, and urban renewal, as compared to the relative ease of undertaking development in the suburbs. It was felt that the type of project proposed, if actively supported by the City, would encourage development within the City. Each indicated a desire to work further with the project in Phase II and suggested their hope that this could lead to a new prospect for industrial development.

INDUSTRY

A number of executives within the five industries analyzed were interviewed. The primary purpose was to identify basic physical and economic characteristics of each industry. The over-all objectives of the proposed project were presented for their evaluation and their assessment of support within the total industry. Reactions ranged from somewhat doubtful interest to consideration of possible relocation to the proposed building. In general, nearly all felt that small and medium sized firms in the five industries have been somewhat neglected in terms of private and public support and they viewed the project as the kind of effort required to maintain the industrial base of the city. All offered to assist further in the project and requested to be kept informed.

RAILROADS

Several major railroads in Cleveland were contacted concerning the extent and location of their land holdings in the City and the availability of such land for development. Such holdings represent an extensive potential land resource within the community. Only one of the companies was able to furnish definitive information concerning their real estate in Cleveland. The majority seemed hesitant to commit themselves to support an inner-city development in terms of promotion. This is attributed to concern for the deterioration of the

urban environment and the fact that some railroads are actively promoting developments in outlying areas. It appeared that the railroads would work with other developers in the provision of appropriate rail service to industrial development areas within the City. The use of air rights over rail rights-of-way could be explored in depth in conjunction with detailed engineering feasibility in Phase II.

REAL ESTATE AND CONSTRUCTION

A major industrial realtor and the president of a large construction company expressed the opinions that the need for such facilities in Cleveland was minimal in light of the available vacant land in the suburbs and available vacant industrial space in the City. While each had a particular interest in industrial relocation or development, they could identify little need for remaining in the City. Further conversations with representatives of the same realty firm gave indications of interest in the project and willingness to assist in the development of rental rates and market test data.

UTILITIES

Several meetings were held with representatives of the major utility companies serving Cleveland. Each has its industrial development and promotion agencies within its organizations. It was hoped that these companies could provide assistance in identifying industrial location requirements and in suggesting potential industries for the proposed building. In terms of industry, most of the services provided by the utilities are related to large firms seeking new locations within the metropolitan area. It appeared they had little data on firms having to relocate within the central city. In general, interest was expressed in the project. However, it was clear that more detailed feasibility would have to be established to generate their total support.

STATE GOVERNMENT

A review of the proposed building was held with representatives of the Ohio Departments of Public Works and Development. Both expressed interest in the concept in terms of promotion and development.

CITY GOVERNMENT

The government of City of Cleveland is deeply interested in retaining its industrial base. There is realization of the employment needs of the City's residents and the City's need to maintain tax revenue from industries. At the same time, the City is deeply involved in other urban renewal and economic redevelopment projects and this particular project must be evaluated in light of these commitments and the City's other needs. Also, the project must be economically feasible or must have potential for a significant return on investment to warrant the City participating in it financially.

In making the initial selection of an industry to serve as tenant subject for this study, the general approach was to make a broad study of Cleveland industry to define the general industrial categories appropriate for study; then to narrow this to a smaller group of five industries for more detailed study; and finally to select one industry as the tenant subject for the prototype building study.

SELECTION PROCEDURE

The specific procedure involved the following:

1. Identified related firms by processes using Standard Industrial Classification (S.I.C.) codes. Certain industries such as petroleum, primary metals and chemicals were automatically excluded because they are not suited for tenancy in a multi-level facility.
2. Ranked four digit S.I.C. codes by size of employment and number of establishments in the County and City (Directory of Ohio Manufacturers.)
3. Arrayed the establishments within four digit S.I.C. codes as to size of employment and identified the average, median or modal distribution.
4. Determined the four-digit manufacturing S.I.C. codes within the County that were disproportionately located within City limits according to the following standards:
 - a. Where all county firms were located in the City;
 - b. Where only one or less than ten per cent of the establishments in the county were outside of the City;
 - c. Included all S.I.C. codes having fifty or more establishments in the county regardless of where located.
5. Contrasted the above S.I.C. codes with those known to have projected relocations and included all manufacturing S.I.C. codes with projected relocations from the 1965 report, An Evaluation of Vacant Industrial Land and Buildings and Their Potential.
6. Identified, by location on working maps, all establishments that met the previously described criteria. Selected from these maps the four digit S.I.C.'s that exhibited clustered or predominantly central business locations. Also identified related groups of four digit codes which clustered or exhibited similar locational patterns.

7. Listed and ranked, by number of establishments (along with median employment) complete listings of four digit S.I.C. codes meeting the criteria above.
8. Analyzed the locational patterns of these industries with respect to the "selected neighborhoods" or those areas of Cleveland identified as poverty areas in the Special U.S. Census of 1965.
9. Based on this general analysis, five basic industrial categories were identified for further analysis and study. These were:
 - Food and kindred products - S.I.C. 20
 - Apparel - S.I.C. 23
 - Printing and publishing - S.I.C. 27
 - Fabricated metal products - S.I.C. 34
 - Machinery (except electrical) - S.I.C. 35

EVALUATION PROCEDURE

Basic guidelines were established to provide the framework for more detailed consideration of the development potential of the five selected industries. Procedurally, these steps were involved.

1. The number of establishments within the basic industrial category (two digit S.I.C.) and the distribution of firms throughout the industrial category by sub-group (four digit S.I.C.) was examined. Within each two digit code, several four digit codes were eliminated due to the existence of only a few industries or where employment was concentrated in a few large establishments (see Exhibits E6, E8, E10, E12, E14).
2. The five selected industrial groups were each mapped to show location of the establishments (see Exhibits in Chapter 1, E6, E8, E10, E12, E14). More detailed location maps for these industries were studied along with location maps of all major manufacturing industrial categories in Cleveland to evaluate existing locational trends.
3. Reference was made to the 1965 study in which each industry was analyzed as to its tendency to relocate within the City following displacement. This study showed that 86% of 105 displaced industries remained within the City. The printing and machinery manufacturing industries show particularly high tendencies to remain in the City. The other three groups, each with a relatively small number of relocations,

showed no greater than an average tendency to relocate within the City. The 1965 study also noted that the greatest number of firms in each category appeared to prefer a new location near their previous location.

4. The distribution of establishments of various sizes within each industry was studied (see Exhibits E7, E9, E11, E13 and E15). This is an indication of the employment patterns of the industry.
5. Interviews were conducted with representative industrial entrepreneurs within the five selected categories. The purpose was to develop basic background data and information concerning locational, operational and functional requirements of the industry for purposes of preliminary architectural programming. The findings of these interviews are incorporated into the building program data and into the summary of the interviews in Appendix I, Section B. The interviews were conducted with the following objectives in mind:
 - a. Seek information for the entire industry rather than specific characteristics of the establishment operated by the interviewee.
 - b. Develop an understanding of relationship between the industry and suppliers and customers.
 - c. Determine key locational factors for the industry.
 - d. Determine relationship of the industry to labor in terms of the skill levels required, the turnover, the importance of labor in the value added and in total operational costs, and the extent to which the labor force is a factor in the location of the industry.
 - e. Determine the general relation of the industry to extra-industrial factors such as distribution systems, market considerations, etc.
 - f. Determine the basic internal functional needs of the industry and the characteristics of key factors which may be identified (e.g. material flow, storage, etc.).
 - g. Identify growth characteristics of the industry and the relationship of industry growth to actual physical expansion.

- h. Identify ancillary service requirements such as industrial and maintenance services, blueprinting, etc.
 - i. Identify new trends in the development of the industry.
 - j. Identify basic cost factors in the industry such as rent, labor, distribution.
 - k. Ascertain the general attitude and potential problems of operating within a multi-tenant situation.
6. The extent of functional obsolescence within the selected industries was examined. In the 1965 study, this was identified as being of substantial magnitude within existing industrial buildings. The findings of the interviews described above indicated that owners and managers in the selected industries located in older buildings are generally faced with significant problems of building obsolescence. Several of the interviewees suggested that they were unable to move to better facilities, not only because suitable space was unavailable elsewhere, but also because prospective purchasers of their present buildings were unable to get suitable financing.

EXHIBIT E6
NUMBER OF ESTABLISHMENTS AND TOTAL EMPLOYMENT IN CLEVELAND
FOR FOOD AND KINDRED PRODUCTS (SIC 20)

S.I.C.	Selected Categories	Number of Establishments	Employment
2011	Meat Packing	13	523
2013	Sausages and Other Prepared Meat Products	19	530
2022	Cheese, Natural and Processed	2	42
2024	Ice Cream and Frozen Desserts	5	134
2026	Fluid Milk	15	1,997
2033	Canned Fruits, Vegetables, Preserves, Jams - Jellies	4	83
2035	Pickled Fruits and Vegetables, Vegetable Sauces and Seasonings	4	23
2037	Frozen Fruits, Fruit Juices, Vegetables and Specialties	7	462
2051	Bread and Other Bakery Products Except Biscuits, Crackers and Pretzels	26	2,196
2071	Candy and Other Confectionary Products	11	186
2086	Bottled and Canned Soft Drinks	14	947
2087	Flavoring Extracts and Flavoring Syrups	3	77
2099	Food Preparations not Elsewhere Classified	<u>17</u>	<u>694</u>
	TOTAL	140	7,894

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E7

SELECTED INDUSTRIES BY NUMBER OF EMPLOYEES FOR FOOD AND KINDRED PRODUCTS (S.I.C. 20)

Selected Industries		Number of Employees										Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -			
Meat Packing Sausages and Other Prepared Meat Products	2011	7	1	2	1	1	-	1	-	13		
	2013	12	3	1	2	-	1	-	-	19		
Cheese, Natural and Processed	2022	1	1	-	-	-	-	-	-	2		
Ice Cream and Frozen Desserts	2024	3	-	2	-	-	-	-	-	5		
Fluid Milk	2026	4	1	2	1	1	1	2	3	15		
Canned Fruits, Vegetables, Preserves, Jams - Jellies	2033	2	2	-	-	-	-	-	-	4		
Pickled Fruits and Vegetables, Vegetable Sauces, Seasonings	2035	4	-	-	-	-	-	-	-	4		
Frozen Fruits, Fruit Juices, Vegetables and Specialties	2037	3	1	-	2	-	-	-	1	7		
Bread and Other Bakery Products Except Biscuits, Crackers and Pretzels	2051	10	5	2	1	2	1	1	4	26		
Candy and Other Confec- tionary Products	2071	6	5	-	-	-	-	-	-	11		

EXHIBIT E7 (cont'd.)
SELECTED INDUSTRIES BY NUMBER OF EMPLOYEES FOR FOOD AND KINDRED PRODUCTS (S.I.C. 20)

Selected Industries	1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -	Total
Bottled and Canned Soft Drinks	2086	7	2	1	-	1	2	1	14
Flavoring Extracts and Flavoring Syrups	2087	2	-	-	1	-	-	-	3
Prepared Foods not Elsewhere Classified	2099	10	4	-	-	1	1	1	17
		71	25	10	8	4	7	10	140

.

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E8
NUMBER OF ESTABLISHMENTS AND TOTAL EMPLOYMENT IN CLEVELAND
FOR APPAREL AND RELATED PRODUCTS (S.I.C. 23)

S.I.C.	Selected Categories	Number of Establishments	Employment
2311	Men's, Youth's and Boys' Suits and Coats	7	3,980
2328	Work Clothing	1	228
2335	Women's, Misses' and Juniors' Dresses	9	1,901
2337	Women's, Misses' and Juniors' Suits and Skirts	5	352
2339	Women's, Misses' and Juniors' Outerwear	4	157
2391	Curtains and Draperies	9	145
2394	Canvas Products	21	491
2399	Fabricated Textile Products not Elsewhere Classified	<u>4</u>	<u>101</u>
	TOTAL	60	7,368

Source: Ohio Directory of Manufacturers, 1965

EXHIBIT E9
SELECTED INDUSTRIES BY NUMBER OF EMPLOYEES FOR APPAREL (S.I.C. 23)

Selected Industries	1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -	Total
Men's, Youth's and Boy's Suits and Coats	2311	2	-	-	1	-	-	3	7
Work Clothing	2328	-	-	-	-	-	-	1	1
Women's, Misses' and Juniors' Dresses	2335	1	1	-	-	2	-	2	9
Women's, Misses' and Juniors' Suits, Skirts, Coats, except Fur Coats and Raincoats	2337	1	2	-	-	1	1	-	5
Women's, Misses' and Juniors' Outerwear (not elsewhere classified)	2339	1	2	-	1	-	-	-	4
Curtains and Draperies	2391	7	1	-	1	-	-	-	9
Canvas Products	2394	18	1	-	-	1	1	-	21
Fabricated Textile Products (not elsewhere classified)	2399	2	1	-	1	-	-	-	4
	32	8	-	4	3	5	2	6	60

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E10
NUMBER OF ESTABLISHMENTS AND TOTAL EMPLOYMENT IN CLEVELAND
FOR PRINTING AND PUBLISHING (S.I.C. 27)

S.I.C.	Selected Categories	Number of Establishments	Employment
2711	Newspapers - Printing, Publishing	24	4,049
2721	Periodicals - Print, Publishing	13	1,118
2741	Miscellaneous Publishing	6	106
2751	Commercial Printing except Lithographic	129	2,395
2752	Commercial Printing - Lithographic	65	1,418
2753	Engraving and Plate Printing	7	114
2761	Manifold Business Forms Manufacturing	6	190
2789	Bookbinding and Miscellaneous Work	18	195
2791	Typesetting	24	252
2793	Photoengraving	11	238
2794	Electrotyping and Stereotyping	5	122
TOTAL		308	10,197

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E11
SELECTED CATEGORIES BY NUMBER OF EMPLOYEES FOR PRINTING AND PUBLISHING (S.I.C. 27)

Selected Categories		Number of Employees										Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -			
Newspapers Publishing and Printing	2711	11	5	2	-	2	1	1	2			24
Periodicals Publishing and Printing	2721	9	-	-	-	-	2	-	2			13
Miscellaneous Publishing	2741	4	2	-	-	-	-	-	-			6
Commercial Printing except Lithographic	2751	105	13	1	5	1	1	1	2			129
Commercial Printing Lithographic	2752	47	10	4	-	2	1	-	1			65
Engraving and Plate Printing	2753	5	1	1	-	-	-	-	-			7
Manifold Business Forms Manufacturing	2761	5	-	-	-	-	1	-	-			6
Bookbinding and Miscellaneous Related Work	2789	17	1	-	-	-	-	-	-			18
Typesetting	2791	19	5	-	-	-	-	-	-			24
Photoengraving	2793	5	5	1	-	-	-	-	-			11
Electrotyping and Stereotyping	2794	2	3	-	-	-	-	-	-			5
		229	45	9	5	5	6	2	7			308

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E12
NUMBER OF ESTABLISHMENTS AND TOTAL EMPLOYMENT IN
CLEVELAND FOR FABRICATED METAL PRODUCTS (S.I.C. 34)

S.I.C.	Selected Categories	Number of Establishments	Employment
3423	Hand and Edge Tools	12	461
3429	Hardware	8	823
3432	Plumbing Fixtures and Fittings	20	2,616
3433	Heating Equipment	10	2,561
3441	Fabricated Structural Steel	20	1,772
3442	Metal Doors, Sashes	19	237
3443	Fabricated Platework	12	597
3444	Sheet Metal Work	40	1,536
3446	Architectural Ornamental Metal	16	382
3451	Screw Machine Products	57	2,226
3452	Bolts, Nuts, Screws	22	5,814
3461	Metal Stamping	73	3,805
3471	Electroplating - Polishing	87	1,442
3479	Coating - Engraving	21	273
3481	Miscellaneous Fabricated Wire Products	39	1,730
3491	Metal Shipping Containers and Barrels	5	365
3494	Valves and Pipe Fittings	11	787
3498	Fabricated Pipe Fittings	7	68
3499	Miscellaneous Fabricated Metal Products	6	242
	TOTAL	485	27,737

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E13
ESTABLISHMENTS IN SELECTED CATEGORIES BY NUMBER OF EMPLOYEES FOR FABRICATED METAL
PRODUCTS (S.I.C. 34)

Selected Categories		Number of Employees										Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -			
Hand and Edge Tools except Machine Tools and Handsaws	3423	7	2	2	-	-	-	-	1			12
Hardware not Elsewhere Classified	3429	2	1	2	-	-	2	-	1			8
Plumbing Fixtures Fittings and Trim	3432	10	1	2	2	-	-	1	4			20
Heating Equipment except Electric	3433	2	4	2	-	-	-	-	2			10
Fabricated Structural Steel	3441	7	5	2	3	-	-	-	5			20
Metal Doors Sash Frames Molding	3442	17	1	1	-	-	-	-	-			19
Fabricated Plate Work	3443	6	1	2	2	-	-	-	1			12
Sheet Metal Work	3444	21	6	4	2	4	2	1	-			40
Architectural and Ornamental Metal Work	3446	8	6	1	1	-	-	-	-			16
Screw Machine Products	3451	33	16	2	2	1	1	1	1			57
Bolts, Nuts, Screws, Rivets, Washers	3452	4	5	-	1	-	5	-	7			22

EXHIBIT E13 (cont'd.)
ESTABLISHMENTS IN SELECTED CATEGORIES BY NUMBER OF EMPLOYEES FOR FABRICATED METAL PRODUCTS
(S.I.C. 34)

Selected Categories		Number of Employees										Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -			
Metal Stamping	3461	33	14	7	3	3	7	5	1			73
Electroplating, Plating, Polishing, Anodizing, Coloring	3471	63	20	3	-	-	1	-	-			87
Coating, Engraving Allied Services	3479	17	4	-	-	-	-	-	-			21
Miscellaneous Fabricated Wire Products	3481	22	7	3	1	1	3	-	2			39
Metal Shipping - Barrels, Drums, Kegs	3491	1	1	-	-	-	3	-	-			5
Valves and Pipes Fittings	3494	4	1	2	2	-	-	1	1			11
Fabricated Pipes and Fittings	3498	7	-	-	-	-	-	-	-			7
Fabricated Metal Products (not elsewhere classified)	3499	4	1	-	-	-	-	1	-			6
		268	96	33	19	9	24	10	26			485

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E14
NUMBER OF ESTABLISHMENTS AND TOTAL EMPLOYMENT IN CLEVELAND
FOR MACHINERY, EXCEPT ELECTRICAL (S.I.C. 35)

S.I.C.	Selected Categories	Number of Establishments	Employment
3522	Farm Machinery and Equipment	4	234
3531	Construction Machinery and Equipment	6	529
3535	Conveyors and Conveying Equipment	3	444
3536	Hoists, Industrial Cranes - Monorail Systems	5	402
3537	Industrial Trucks, Tractors, Trailers	6	2,743
3541	Machine Tools, Metal Cutting	8	3,266
3542	Machine Tools Metal, Forming Types	3	250
3544	Special Dies and Tools, Die Sets, Jigs and Fixtures	178	4,164
3545	Machine Tool Accessories and Measuring Devices	25	2,225
3548	Metalwork Machinery except Machine Tools	9	1,619
3555	Printing Trades Machinery Equipment	7	945
3559	Special Industrial Machines	19	1,588
3563	Bearings Made of Bronze	6	2,415
3564	Blowers Exhaust and Ventilating Fans	7	466
3565	Industrial Patterns	30	611
3566	Mechanical Power Equipment	15	1,393
3567	Industrial Process Furnaces and Ovens	14	588
3569	General Industrial Machinery and Equipment (not elsewhere classified)	9	899
3589	Service Industrial Machinery (not elsewhere classified)	5	346
3599	Miscellaneous Machinery (except electrical)	192	2,413
	TOTAL	551	27,540

Source: Directory of Ohio Manufacturers, 1965

EXHIBIT E15

ESTABLISHMENTS IN SELECTED CATEGORIES BY NUMBER OF EMPLOYEES FOR MACHINERY, EXCEPT ELECTRICAL
(S.I.C. 35)

Selected Categories		Number of Employees									Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -		
Farm Machinery and Equipment	3522	-	3	-	-	-	1	-	-	4	
Construction Machinery and Equipment	3531	2	1	-	-	-	2	-	1	6	
Conveyors and Conveying Equipment	3535	1	-	-	-	-	-	1	1	3	
Hoists, Industrial Cranes-Monorail Systems	3536	2	-	-	2	-	-	-	1	5	
Industrial Trucks, Tractors, Trailers	3537	1	-	-	-	-	-	1	4	6	
Machine Tools, Metal Cutting	3541	1	1	-	-	-	-	2	4	8	
Machine Tools, Metal Forming Types	3542	2	-	-	-	-	-	-	1	3	
Special Dies and Tools, Die Sets, Jigs and Fixtures	3544	130	24	10	4	6	1	-	3	178	
Machine Tool Accessories and Measuring Devices	3545	14	5	2	-	1	1	1	1	25	
Metalworking Machinery except Machine Tools	3548	3	-	-	-	1	-	1	4	9	

EXHIBIT E15 (cont'd.)
ESTABLISHMENTS IN SELECTED CATEGORIES BY NUMBER OF EMPLOYEES FOR MACHINERY, EXCEPT ELECTRICAL (S.I.C. 35)

Selected Categories		Number of Employees										Total
		1-20	21-40	41-60	61-80	81-100	101-150	151-200	201 -			
Printing Trades Machinery and Equipment	3555	5	-	-	-	1	-	-	1	1	7	
Special Industrial Machines (not elsewhere classified)	3559	7	2	3	1	-	4	-	2	19		
Bearings Made of Bronze	3563	2	-	1	1	-	1	-	1	6		
Blowers, Exhaust, Ventilating Fans	3564	4	-	-	1	-	1	-	1	7		
Industrial Patterns	3565	26	1	-	2	-	-	-	1	30		
Mechanical Power Equipment (except ball bearing and roller)	3566	5	2	2	2	-	1	-	3	15		
Industrial Process Furnaces and Ovens	3567	7	3	1	1	-	1	-	1	14		
General Industrial Machines and Equipment (not elsewhere classified)	3569	1	2	3	-	-	2	-	1	9		
Service Industrial Machine (not elsewhere classified)	3589	3	1	-	-	-	-	-	1	5		
Miscellaneous Machinery (except electrical)	3599	163	20	5	2	1	1	-	-	192		
		379	65	27	16	10	16	6	32	551		

Source: Directory of Ohio Manufacturers, 1965

During this early stage of the study, the program research and data collection focused on locating and identifying sources of data, obtaining the data, then organizing and analyzing this information. This was done following the selection of five Cleveland industrial groups as possible tenant subjects (see Chapter 1 and Appendix 1, Section C). The research was directed toward defining industrial requirements and toward surveying current industrial construction practices, especially in multi-level facilities.

DATA SOURCES

- This firm had interviewed firms in the selected industrial groups within the context of the 1965 study, An Evaluation of Vacant Industrial Land and Buildings and Their Potential. The information, as summarized in the 1965 report, provided certain basic program data which has been applicable in this present study.
- Contact was established by letter with selected knowledgeable sources who have provided information on current construction techniques, material handling systems, and other industrial building construction and research projects. In most cases, the data in question was of little value for a multi-level, multi-tenant facility. There was also correspondence with people involved in construction or management of multi-level, multi-tenant buildings in Europe.
- A bibliography was assembled covering published data on planning and construction of industrial facilities. This included monographs, periodicals and published papers of case studies and research. The bibliography is reproduced in this report.
- A series of interviews was held with owners and managers of establishments within the five selected industries. Where possible, visitations were made to their plant facilities. These helped establish the need for new industrial space, their existing conditions, capabilities and problems, and the building requirements. A special interview form was developed (see Exhibit E16) which guided discussion and was used to assure uniform data collection.
- Applicable municipal codes and ordinances were reviewed for building and planning requirements. These include:
 - Codified Ordinances of the City of Cleveland, Building Code, Title 3, Chapter 11, Zoning
 - Codified Ordinances of the City of Cleveland, Building Code, Title 3
 - Gladstone Urban Renewal Plan

EXHIBIT E16
E.D.A. INDUSTRIAL BUILDING INTERVIEW GUIDE

A. IDENTIFICATION: Define interviewee's industrial capacity.

1. S.I.C. Code
2. S.I.C. sub code
3. Further definition
4. Finish product
5. Manufacturing services

B. LOCATION: Site

1. Determine location preferred
2. Location of major market
3. Location of major source of material supply
4. Preferred adjacent user

C. SIZE OF SPACE:

Total existing (square feet)

1. Expansion characteristics
Record of expansion (square foot)
Future requirements
2. Flexibility characteristics
Record of change
Brief description of change

3. Space breakdown characteristic (% or sq. ft.)
Office
Plant
Storage
Plant services
Maintenance facilities
Employees services

4. Relationships of space characteristics

D. KIND OF SPACE:

1. Density (people/square foot) _____
2. Clear span area characteristics _____
3. Floor loading characteristics _____
 Type of stationary equipment _____
 Type of moving equipment _____
4. Space environmental characteristics _____
 Natural and artificial light _____
 Cooling and heating _____
 Ventilation supply and exhaust _____
 Noise control _____

E. MATERIAL HANDLING FACILITIES

1. Type of flow pattern _____
 (U, loop, straight line, circular) _____
 Horizontal, vertical _____
2. System of material handling _____
 (Automatic, mechanical, manual, combination) _____
3. Warehouse system size characteristics _____
 (Large supply - to minimum) _____
 Low to high ceiling height _____
4. Receiving requirements _____
 Docks capacity _____
 Method of loading _____
 Frequency or use characteristics _____
5. Multi-story characteristics _____

F. CONTROL AND SECURITY

1. General characteristics _____
2. Multi-story characteristics _____
3. Adjacent tenant problem _____

GENERAL COMMENTS

ORGANIZATION OF DATA

The general programming outline was prepared (see Exhibit E17). This served as a guide to the type of information needed and to the organization of the data. From this, a matrix system was formulated and used to organize all research information. The matrix separated data into these categories:

- Existing single tenant, single-level and multi-level information.
- Existing or proposed multi-tenant, multi-level information.
- Various programming areas and their relationship to the data noted above.

The data was gathered and, according to the matrix system, put into a basic tabular form. From this, a series of charts was made for each of the five selected industries, showing the detailed programming characteristics and the specific source of information. A complete set of these charts for the Food Industry is reproduced as Exhibits E18, E19 and E20. The data is representative of that compiled for all five industries studied.

EXHIBIT E17
OUTLINE OF GENERAL PROGRAM REQUIREMENTS

- A. External Environmental Improvement and Control
 - 1. Basic relationship to surrounding area
 - 2. Tie between internal and external site conditions
- B. Physical Site Requirements
 - 1. Organization of site elements
 - 2. Basic traffic consideration
 - 3. Parking requirements
 - 4. Relationship between building elements and site layout
 - 5. Determination of adequate site area and space requirements
- C. Physical Building Requirements
 - 1. Organization of relationship between building elements
 - 2. Space requirement and rentable space module
 - 3. Relationship of tenant space to building layout
 - 4. Determination of tenant requirements
 - 5. Identification of essential service elements for base building
 - 6. Technological requirements including structural system, building materials, environmental control
- D. Material Handling
 - 1. Rail
 - 2. Truck facilities
 - 3. Internal - vertical and horizontal

IDENTIFICATION OF BUILDING'S FUNCTIONAL NEEDS

From the information gathered, the basic functional requirements of the building were identified:

- Industrial space
 - a. Processing
 - b. Warehouse
- Commercial - identified as desirable to provide related support services; possibly to include:
 - a. Office
 - b. Retail
 - c. Restaurant, cafeteria
- Building service
 - a. Public circulation
 - b. Mechanical, electrical
 - c. Building storage
 - d. Building management
- Material handling
 - a. Railroad dock
 - b. Truck dock and loading
 - c. Truck holding
 - d. Truck circulation
 - e. Internal material handling
 - f. Operation control
- Car Parking

STATEMENT OF BUILDING PROGRAM

The data for each industry was tabulated for ease of handling and evaluation. Exhibits E18, E19, and E20 summarize the data for the food industry; similar information was gathered for the other four industries. From this, the general program as discussed in Chapter 1, Exhibit E15, was developed. This, in turn, led to the specific program for Prototype One as discussed in Chapter 2 and Appendix 2.

SOURCE

PRODUCT

NAME

1	GENERAL MILLS	LANCASTER, OHIO	FOOD PRODUCTS	FACTORY MAGAZINE	MAY 1967	S
2	THOMAS U. LIPTON INC.	INDEPENDENCE, MO.	SALAD DRESSING	FACTORY MAGAZINE	MAY 1967	O
3	CHALLENGE CREAM & BUTTER ASSOC.	LOS ANGELES, CALIFORNIA	PROCESS & PACKAGE DAIRY GOODS	FACTORY MAGAZINE	MAY 1966	C
4	H.J. HEINZ CO.	DANDENONG, AUSTRALIA	CANNED GOODS	BUILDINGS FOR INDUSTRY	BY WALTER HENN	R
5	H.J. HEINZ CO.	KITT GREEN, ENGLAND	CANNED GOODS	BUILDINGS FOR INDUSTRY	BY WALTER HENN	C
6	ETA FOODS	MELBOURNE, AUSTRALIA	PEANUT BUTTER, NUTS, MAYONAISE	BUILDINGS FOR INDUSTRY	BY WALTER HENN	F
7	MEYERS MEAT CO.	CLEVELAND (GLADSTONE), OHIO	CUT AND PACKAGE MEAT	INTERVIEW BY GOULD & ASSOC.		7
8	PEREN FRUIT BASKET CO.	CLEVELAND (GLADSTONE), OHIO	PREPARE FRESH FRUIT BASKETS	INTERVIEW BY GOULD & ASSOC.		8
9	AMERICAN AUTOMATIC VENDING	CLEVELAND, OHIO	FOOD PROCESSING FOR MACHINE VENDING	INTERVIEW BY GOULD & ASSOC.		9
10	CHICAGO PROTOTYPE DESIGN		MISC. MULTI-TENANT BLDG.	MID-CHICAGO ECO. DEV. STUDY	MAYOR'S COMMITTEE	10
11	CLEVELAND PROTOTYPE DESIGN		MISC. MULTI-TENANT BLDG.	ARA REPORT 1965	BY GOULD & ASSOC.	11
12	CLEVELAND INDUSTRIAL RELOCATION AVERAGES		NONE	ARA REPORT 1965	BY GOULD & ASSOC.	12
13	INDUSTRIAL CONSULTANT		NONE	ERNST & ERNST	CLEVELAND, OHIO	13
14	BUILDING CODE	CITY OF CLEVELAND	NONE	CODIFIED ORDINANCES	CLEVELAND, OHIO	14
15	ZONING CODE	CITY OF CLEVELAND	NONE	CODIFIED ORDINANCES	CLEVELAND, OHIO	15
16	UNIVERSITY - EUCLID	URBAN RENEWAL PROJECT	NONE	CITY PLANNING COMMISSION	CLEVELAND, OHIO	16
17	GLADSTONE	URBAN RENEWAL PROJECT	NONE	CITY PLANNING COMMISSION	CLEVELAND, OHIO	17

20

EXHIBIT E17
+ yes - no • not available

LOCATION

PR ACCESS

SITE LAND USE RATIO

LOCATION		S.I.C.	S	O	U	K	C	E	7	8	9	10	11	12	13	14	15	16	17	EVALUATION OF INFORMATION
BIT E19		20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
+ yes - no • not available																				
RELATIONSHIP	proximity to industry		-	-	-	-	-	-	+	+	+	•	+	+	+	•	•	•	•	Gladstone, Cleveland
LABOR	skill proximity		-	-	-	-	-	-	+	+	•	•	+	•	low +	•	•	•	•	high, medium, low city
LOCATION	urban suburban		+	+	+	+	+	+	+	+	+	+	+	60% 20%	•	+	+	+	+	urban
TOPOGRAPHY	flat slope		+	+	+	+	10%	+	•	+	+	+	+	•	not imp.	•	•	•	•	generally flat, but not critical
SITE SHAPE	rectangular other		•	•	•	+	circ.	+	•	•	•	+	+	•	not imp.	•	•	25' side deck 15' x 10'	15' side deck 15' x 10'	generally rectangular, but not critical
SPECIAL REQUIREMENTS			-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	•	
PEDESTRIAN	public transportation		•	•	•	•	•	•	•	•	•	+	•	•	+	•	•	•	•	public transportation necessary
VEHICULAR	no. roads road width	2	•	•	•	1 30'	1 30'	1 30'	•	•	•	1 30'	•	•	•	•	•	•	•	
SERVICE	no. roads road width	•	2	•	•	1 30'	1 30'	1 30'	•	•	•	2 30'	•	•	•	•	50' side deck 10' x 10'	screen and sidewalk	conc. heavy load g	
SERVICE	rail type track	+	+	+	+	+	-	+	-	-	-	+	•	•	lim. use	•	•	•	•	rail service necessary, preferably loop with team storage tracks
SITE AREA	acres	133	110	16.0	70.8	52.0	10.9	•	•	•	•	7.4	•	5.8	•	•	•	•	•	
PARKING	acres %coverage	3.7 .28	•	•	4.1 25.6	2.0 3	.9 7	.7 6	•	•	•	3.7 50	•	7.4 100	•	•	•	•	•	
BUILDING	F.A.R. %coverage	.08	.03	.43	•	.03	.31	•	•	•	•	2.0 50	•	2.4 100	•	max. 100% cov.	•	max. 70% cov.	max. 40% stor.	Gladstone Code 40 % maximum coverage
BLDG. PRKG. RATIO	ground coverage	3.62	•	1.7	4.4	6.6	3.5	•	•	•	•	4.0	2.4	•	•	•	•	25% gross floor area	•	4 square feet of building to 1 square feet of parking
EMPLOYEES	number	230	150	400	550	1800 500 night	150	55	7	300 incl. truck	•	•	•	1-10	•	•	•	•	•	1 - 10 employees per firm, median, Cleveland source
CARS	number	400	•	450	180	100	87	•	•	•	•	800	800	•	•	•	•	•	•	
PARKING DEMAND	cars/ employee	1.74	•	1.1	.33	.18	.58	•	•	•	•	•	•	•	0 1/2 visit	•	•	.5	.5 plus visit	Gladstone Code 2 employee per 1 car

DOGRAM MAJOR BUILDING ELEMENTS

NG SERVICE FACILITIES

BU LOADING

STRUCTURE	concrete steel	+	+	+	+	+	+	•	•	•	+	•	•	corros. resis.	type 1 A 4 hr.	•	•	•	concrete best suited for multi-story heavy loading
COST	\$ / sq. ft.	•	•	14.15	•	•	•	1.20 rent	•	•	10.25	10.00 2.18 rent	•	•	18.00	•	•	•	\$10 - \$20 multi-story industrial building
HEIGHT	no. stories	5	2	1	6	4	2	1	3	•	10	5	50% multi-story	•	no limit	max. 115' ht. clear w. side	max. 60' ht.	city code	5 - 10 stories, tall factor, Cleveland Code 115 feet height limit
TOTAL AREA	square feet	442831	157865	300375	•	58700	14900	12000	5000	•	660000	600000	•	•	•	max. 100% cov. 115' ht.	max. 70% cov. 60' ht.	max. 40% cov.	
AREA PER STORY	square feet	var.	var.	300375	var.	var.	var.	12000	5000	•	67000	var.	•	•	•	max. 100% cov.	max. 70% cov.	max. 40% cov.	
AREA PER PERSON	square feet	1920	1050	750	•	326	997	343	715	•	•	•	500	400	•	•	•	•	400 square feet per employee
FUTURE EXPANSION	%	100	50	•	•	50	•	125	50	50	•	20	•	•	•	•	•	•	25 - 50 % expansion
SANITARY	size	•	12" main	•	•	•	•	•	•	•	•	•	•	city code	sec. 5.1953	•	•	•	City, State, and Federal Codes
STORM	size	•	•	•	•	•	•	•	•	•	•	•	•	no spec. treat.	•	•	•	•	
ELECTRICITY	demand	69% v	5500 kva	5000 kva	•	•	•	•	•	•	•	•	•	20HP 220 v 440 v	•	•	•	•	
NAT. GAS	cu. ft. per hour	+	+	•	•	•	•	•	•	•	•	•	•	-	•	•	•	•	
WATER	process potable	•	•	•	•	•	•	•	•	•	•	•	•	+	+	•	•	•	
COMPRESSED AIR	pressure	100 p.s.i.	125 p.s.i.	•	•	•	•	•	•	•	•	•	•	100 p.s.i.	•	•	•	•	125 p.s.i.
HEATING	steam hot water	•	•	•	•	•	•	•	•	•	•	•	•	70% steam	•	•	•	•	
AIR CONDITIONING	central individual	off. only	2.5% total	-	•	•	•	•	50%	•	•	•	•	-	•	•	•	•	
SPEC. SERVICES	fuel waste	•	•	•	•	•	•	vent. refig.	•	•	•	•	com. fac.	vent. refig.	•	•	•	•	
DOCK AREA	number	15	9	6	24	•	16	•	2	3	42	•	•	stor. yard	•	•	500000 sq. ft.	500000 sq. ft.	Minimum 8 docks per 500,000 square feet of building
DOCK AREA	bdg. area/dock ratio	29500	17500	50000	•	•	9340	•	2500	•	15700	•	•	•	•	•	•	•	
TRUCK DEMAND	frequency time	•	•	•	•	•	•	•	•	•	•	•	•	early A.M.	•	•	•	•	refrigeration and ventilation

FOOD
EXHIBIT E20

+ yes - ~ ● not available

IDENTIFICATION		S.I.C.	5	O	U	R	C	E	7	8	9	10	11	12	13	14	15	16	17	EVALUATION OF INFORMATION		
FOOD EXHIBIT E20		20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17			
+ yes - no • not available																						
LOADING	TRUCK TYPE	van semi	•	+	•	+	•	+	+	•	100 deliv truck	+	•	•	celiv truck	•	•	•	•	•	all truck types	
	TRUCK SPECS.	turning rad. holding area	•	•	•	•	•	•	nec.	•	•	•	•	•	stor yard	14x45 berth size	50' x 75'	•	•	5' from street line		
	TRUCK SPECS.	floor load capacity	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	RAIL	no. docks type track	4 docks 26 ft	2 docks	1 dock	+	+	-	-	-	-	-	+	•	lim use	•	•	•	•	•		
	SECURITY	gate office	+	•	alarm sys.	+	•	•	priv police sec.	priv police serv.	•	+	+	•	•	alarm sys.	no fire alarm	•	•	•	Individual alarm system and private police service	
MAT'L H'DL'G	DOCK	leveler conveyor lift truck elevator crane conveyor	+	+	•	•	•	•	+	•	+	•	•	•	+	•	•	•	•	•	yes possibly yes	
	PRODUCTION	lift truck hopper car hand truck	+	+	•	•	•	•	+	•	+	•	•	•	+	•	4' shaft	•	•	•	yes yes yes	
	PRODUCTION		+	+	•	•	•	•	•	•	+	cable car	•	•	+	•	•	•	•	•	yes no yes	
ADMINISTRN	OFFICES	executive group conference	•	+	•	•	•	•	•	•	•	•	•	•	com. fac.	•	•	•	•	•		
	AREA	square feet	12000	15000	32000	8700	32500	•	1200	500	•	500000	•	•	•	•	•	•	•	•		
	AREA	% total floor area	2.7	6.3	10.7	•	5.5	•	10.0	10.0	20.0	9.1	•	•	5.0-10.0	•	•	•	•	•	10 % average	
	LOCATION	central departmental	•	•	•	•	•	•	+	+	•	•	•	•	+	•	auto r 7' fence	•	•	auto r 6' fence		
STORAGE	SIZE	bay size height	52x52 25'	18'	•	32x88	•	25x66 10'-19'	20x20 12'-14'	20x20 low	20x20 38x42 16'	•	•	•	20x30 12'	•	•	•	•	•	30 feet by 30 feet average 16 feet average	
	AREA	square feet	22326	55700	55720	97900	165000	•	4200	1000	•	•	•	•	•	•	•	•	•	•		
	AREA	% total floor area	50.3	35.0	18.6	•	28.0	•	35.0	20.0	15	•	•	•	•	10.0	•	•	•	•	30 % average	
	ENVIRONMENT	light sound atmosphere	•	•	•	•	•	•	100% artif.	•	•	•	•	•	fumes	after fire distr.	res. semi-gen unrest	•	•	no air pollu	all artificial light no sound control necessary fume control necessary	
PRODUCTION	INTERNAL CIRCULATION	aisle width stair width	•	•	•	•	•	•	•	•	•	•	•	•	8'	2 exits 1 floor 1-100'	•	•	•	•	8 feet aisles for lift trucks, 2 exits per story	
	FLOW PATTERN	loop straight turn	+	+	•	+	+	+	+	+	+	+	•	•	•	•	•	•	•	•	varies	
	BAY SIZE	feet	20x30	42x40	32x40 32x40	32x88	•	25x66	20x20	20x20	20x20	38x42	•	•	20x30	•	•	•	•	•	30 feet by 30 feet average	
	CEILING HT	feet	20'	18'	18'-6" 23'-0"	20'	20'	25	12'-14'	low	•	16'	•	•	12'	•	•	•	•	•	16 feet average	
	INTERIOR MATERIALS	floor wall ceiling	conc mas conc.	conc.	•	quar tile	quar tile	•	•	•	•	•	•	•	epoxy fin.	1 hr. ten. part	•	•	•	•		
	LIVE LOAD	lbs./sq. ft.	150	500	200	•	•	•	150-200	150-200	•	•	•	•	•	200	•	•	•	•	•	150 - 500 p.s.f.
	SPECIAL EQUIP		•	•	•	•	•	•	heat cutting mach.	•	•	•	•	•	•	•	•	•	•	•		
	PERSONNEL	female male no. shifts	•	•	•	•	•	60 40	30 1 1/2	same seas.	•	•	•	•	•	high % fem.	•	•	•	•		
	AREA	square feet	193200	99200	208600	•	342600	•	6600	3500	•	525000	•	•	•	•	•	•	•	•		
	AREA	% total floor area	43.7	56.5	69.6	•	58.5	•	55.0	70.0	40	79.5	•	•	•	•	•	•	•	•	58 % average	
EMPLOYEE WELFARE	DINING	cafeteria lunch room	•	•	•	•	•	36 2100 5 shifts	1 man 1 wpm	-	-	•	-	•	1 eat 1 cin	2 hr. occ. part.	•	•	•	•		
	DINING	vending machine rm.	2 rms. 125 cap.	1500 1500 1500 1500	100 cap.	•	•	-	-	-	-	-	-	•	•	2 exit 1 floor 1-75'	•	•	•	•		
	RECREATION	rooms	•	•	•	•	•	•	1 man 1 wpm	-	-	-	-	•	-	•	•	•	•	•		
	MEDICAL	dr., nurse no. beds	2 rms. 125 cap.	1500 1500 1500 1500	•	•	•	•	156 sq. ft. +	-	-	-	-	•	1 nurse	•	•	•	•	•		
MAINTNCE	LOCKER ROOM	no. lockers no. showers	•	•	•	•	•	•	•	•	•	•	•	•	com. fac 1 floor	4 w.c 100 person	•	•	•	•		
	AREA	square feet	3750	2300	2700	15750	32500	4500	•	•	•	•	•	•	•	•	•	•	•	•		
	AREA	% total floor area	9	1.3	7	•	•	•	3.2	min	•	5.0	•	•	•	•	•	•	•	•	2.8 % average	
MAINTNCE	ROOMS	wallpaper refuse	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	AREA	square feet	945	1465	2050	•	1500	•	•	•	•	•	•	•	•	•	•	•	•	•		
	AREA	% total floor area	2.2	9	7	•	2.5	•	min	•	5.9	•	•	•	•	•	•	•	•	•	2.3 % average	

The selection of the building site was carried on concurrently with the study and selection of industries and much of the data is closely inter-related. The general procedure involved first the identification of geographic areas which might contain a site; second, selection of areas for detailed study; third, the identification of several specific alternative sites from which one site for use in the feasibility study could be selected.

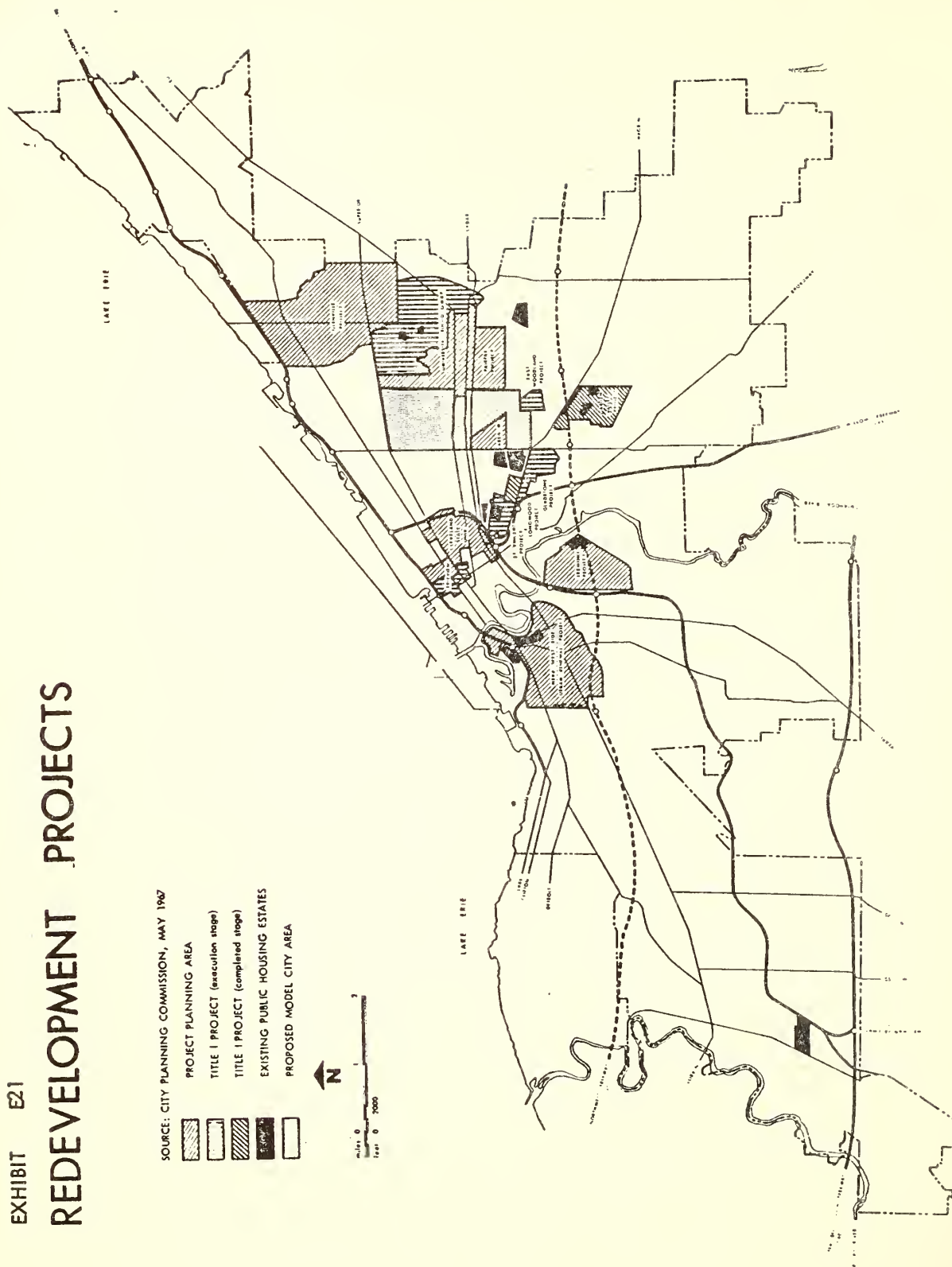
IDENTIFICATION OF GEOGRAPHIC STUDY AREAS

1. A base map of the City was prepared from maps provided by the City Planning Commission. This base map describes the major street patterns and freeway system, and was used for recording of all pertinent data.
2. Utilizing transparent base maps, information concerning the following was assembled and mapped:
 - a. "Poverty areas" or selected neighborhoods as defined in Special Census of 1965.
 - b. Current extent of industrial zoning in Cleveland
 - c. Existing and proposed inter-state freeway system
 - d. Public transportation services to selected neighborhoods
 - e. Commercial transportation services to selected neighborhoods
 - f. Current redevelopment projects within the City, including urban renewal, "Model Cities" and public housing developments
3. The work maps illustrating this information were overlayed and analyzed with relation to the various areas of the City and with respect to the maps describing industrial location (see Chapter 1, Appendix I, Section C). In addition, the pattern of industrial land and building vacancies in Cleveland identified in the 1965 study was reviewed in conjunction with this analysis. The basic information developed for the work maps is reproduced in Exhibits E21 through E24.

EXHIBIT E21





SOURCE: CITY PLANNING COMMISSION, MAY 1967

- | | PROJECT PLANNING AREA | TITLE I PROJECT (auction stage) | TITLE I PROJECT (completed stage) | EXISTING PUBLIC HOUSING ESTATES | PROPOSED MODEL CITY AREA |
|-----|-----------------------|---------------------------------|-----------------------------------|---------------------------------|--------------------------|
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PUBLIC TRANSPORTATION FACILITIES SERVICING SELECTED NEIGHBORHOODS

SOURCE: CLEVELAND TRANSIT SYSTEM, MAY 1987

-  SELECTED NEIGHBORHOODS
-  EXPRESS BUS ROUTES
-  LOCAL BUS ROUTES
-  RAPID TRANSIT

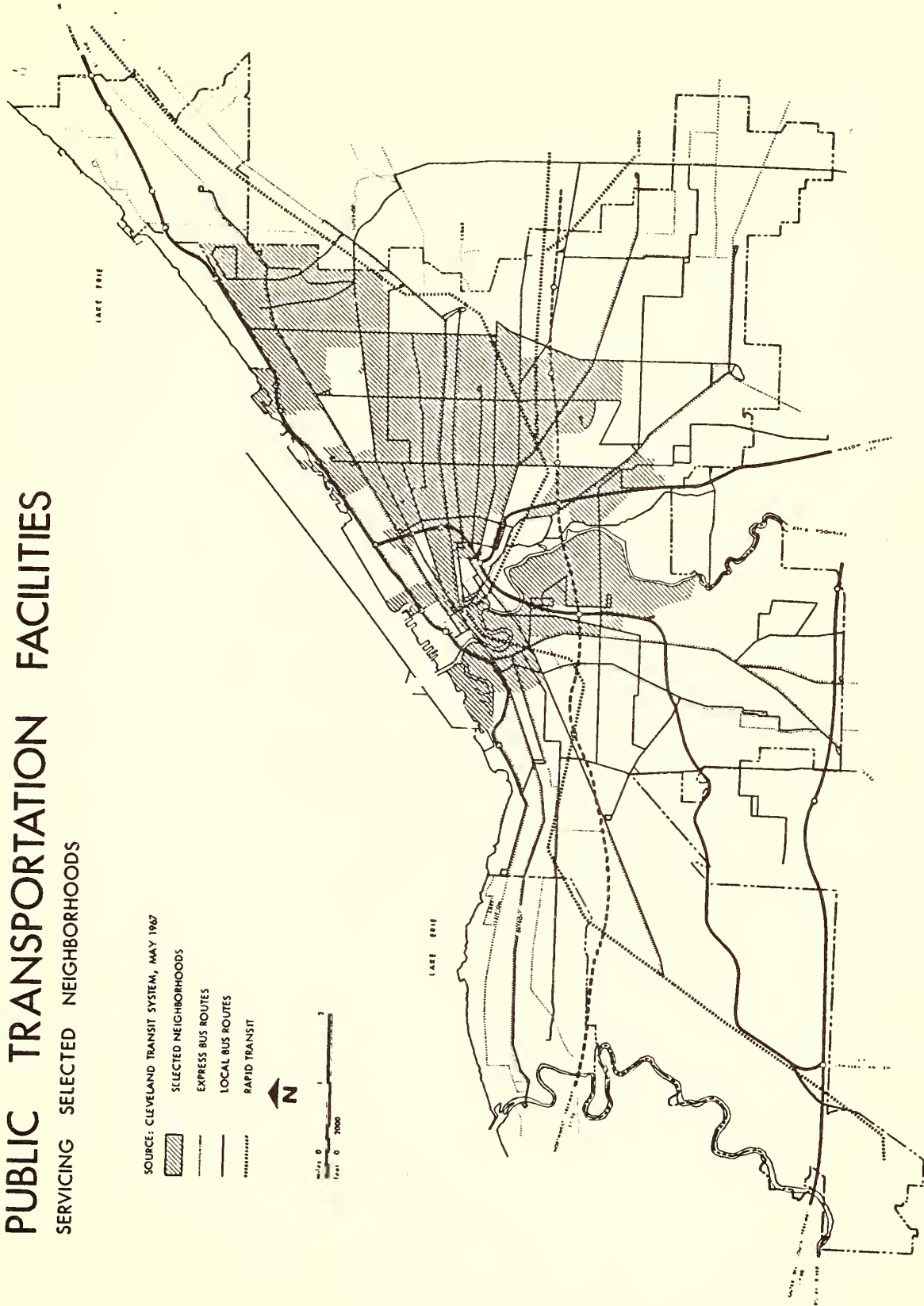
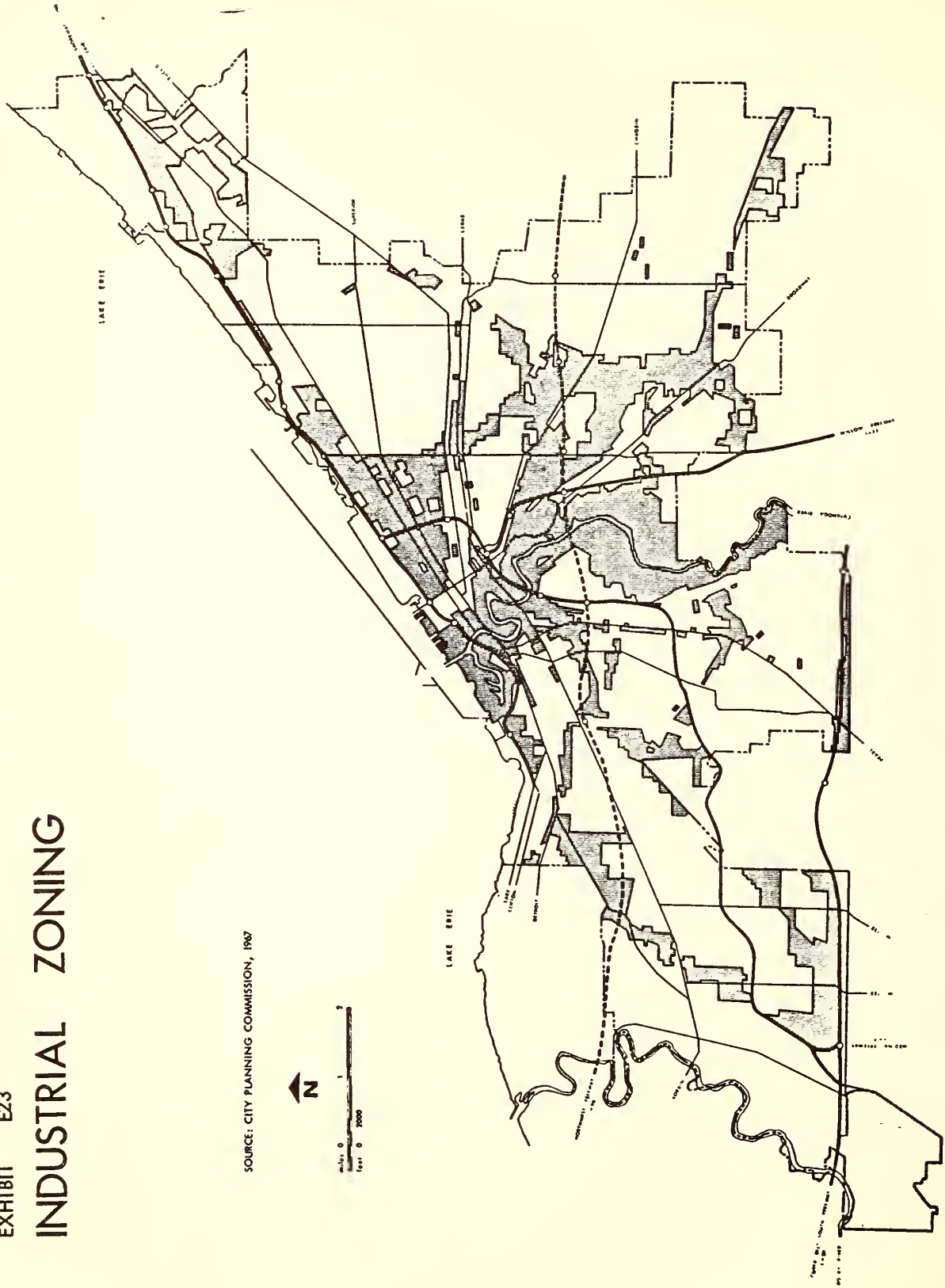


EXHIBIT E23
INDUSTRIAL ZONING

SOURCE: CITY PLANNING COMMISSION, 1967



COMMERCIAL TRANSPORTATION FACILITIES

SOURCE: CITY PLANNING COMMISSION, 1962

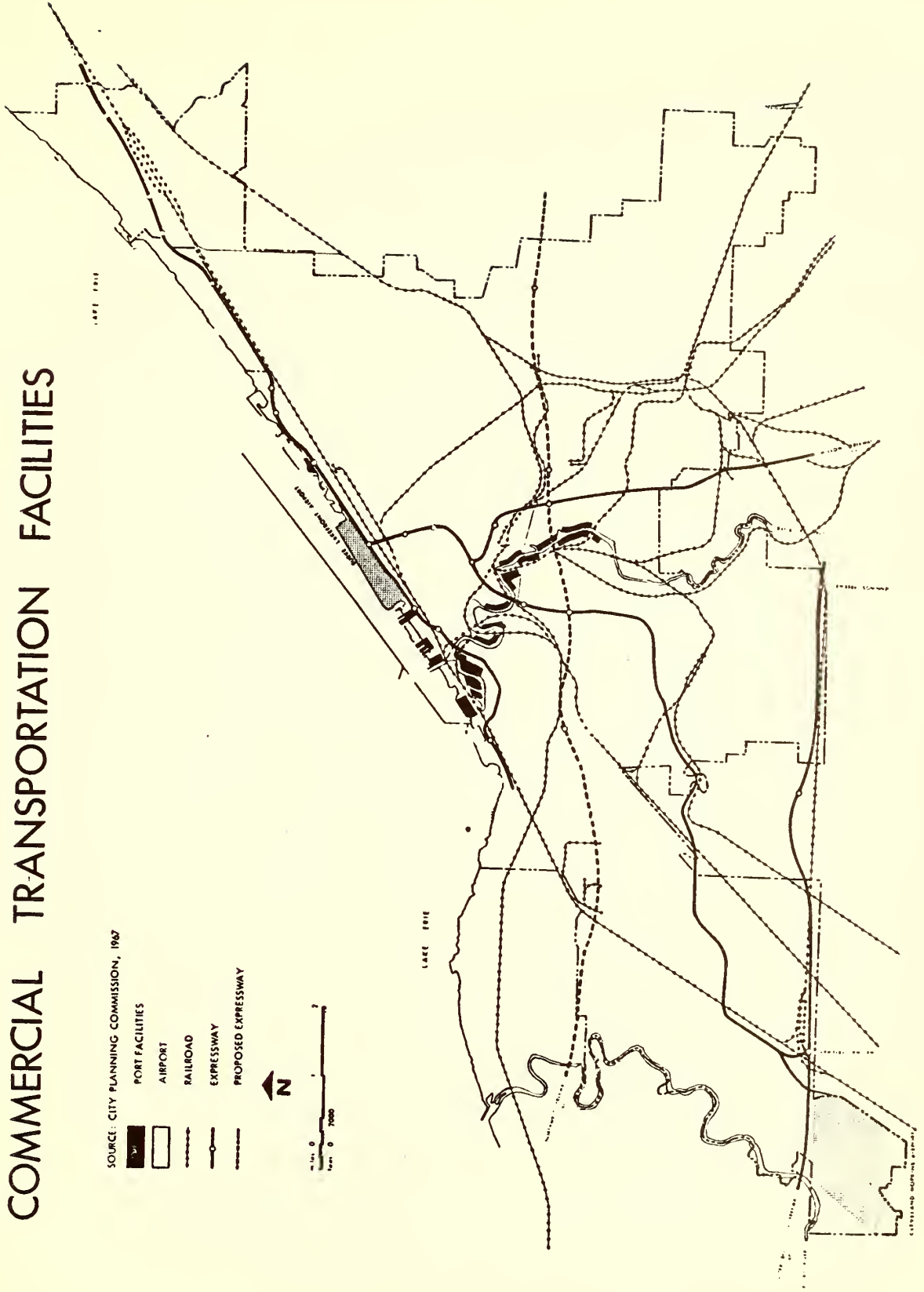
PORT FACILITIES

AIRPORT

RAILROAD

EXPRESSWAY

PROPOSED EXPRESSWAY



SELECTION OF AREAS

The original work program contemplated the identification of a single area within the City for site evaluation and selection. It became evident that the range of development possibilities, and the apparent need for various types of industrial space warranted a more extensive evaluation of possible areas. The following criteria were applied in the selection of the study areas.

- Proximity to strong areas of related industries or similar activities to the industries under consideration.
- Accessibility to suppliers and markets for the industries under consideration
- Proximity to poverty of disadvantaged areas of the City.
- Proximity to projected areas of industrial displacements.
- Industrial zoning
- Relationship to current and proposed public improvement projects, including urban renewal and Model Cities.
- Highway and rail accessibility
- Public transit access from selected neighborhoods
- Land and building vacancy patterns (1965 report)
- General image of the area
- Consideration of basic alternative industrial environments available within the City

Based on the above criteria, three geographic areas of the city, known as Gladstone, Downtown, and Lakeside, were selected for further study.

IDENTIFICATION OF ALTERNATIVE SITES

A detailed survey and analysis of each area was conducted with the objective of selecting an appropriate site in each, for possible use in the study. This involved the following steps:

1. Development and use of a survey form for recording data concerning each parcel of land within the study area, including parcel identification number and ownership information. This form is reproduced as Exhibit E25.

2. Recording of ownership patterns within each study area. Tax maps and ownership data were assembled from the Cuyahoga County Auditor's office, noting public ownership, railroad ownership, ownership of two or more contiguous parcels by the same owner.
3. Complete field survey (exterior) of each area, recording use and name of establishment, apparent building conditions, and extent of vacancy for each parcel. Aerial photographs were also used for verification of the survey.
4. Mapping of field survey and ownership data on base maps prepared for each study area. Base maps were prepared from City Planning Commission and County Auditor's information.

Within each area, several sites were found which might be appropriate. These were evaluated using the criteria listed below and data was mapped (see Exhibits E26 through E31, this appendix, and Chapter 1, Exhibits E19, E20, E28, E29, E36, E37).

- Public ownership of land, including urban renewal disposition parcels.
- Large areas of private ownership or areas which could be assembled through a minimum number of separate owners.
- High incidence of land and/or building vacancy.
- Adjacent industrial or related land use plan.
- Site accessibility in terms of major streets, mass transit, rail freight, and pedestrians.
- Industrial zoning.
- Image of the site in terms of visual impact and quality of surrounding environment.
- General soil conditions.
- Strength of surrounding area and potential for relationship with adjacent uses in terms of direct market and supply relationship as well as provision of common services for the area.
- Potential for relationship with proposed physical and economic renewal in the Model Cities and other redevelopment programs.

One site in each area was identified as being most suitable for further evaluation and testing with respect to the feasibility of construction and the holding capacity of the site for the proposed multi-level building. Based on the analysis of industrial development

potential and the detailed evaluation of the three study areas, it was concluded that each area was best suited for a particular industry. The recommended sites and industries are:

- A printing and graphic arts building on the Downtown Site.
- A food processing and distribution facility on the Gladstone Site.
- A machinery and fabricated metals manufacturing building on the Lakeside Site.

The characteristics of these sites are summarized in Chapter 1 of this report.

EDA # 66-77 (10085)
 Prototype Industrial Deck - Cleveland
 Contract No. 03-6-09056

Site Selection Analysis

STUDY AREA FIELD SURVEY

LOCATION:

Address _____

Tax identification number _____

Map _____ Page _____ Parcel _____

Census tract _____

Owner _____

USE:

Name and/or Description _____

- ☐ Residential _____
- ☐ Office Building _____
- ☐ Retail Commercial _____
- ☐ Wholesale Commercial _____
- ☐ Institutional _____
- ☐ Public _____
- ☐ Vacant _____ % _____
- ☐ Parking _____
- ☐ Warehouse _____
- ☐ Open Storage _____
- ☐ Transportation terminal _____
- ☐ Railroad _____
- ☐ Industrial _____

BUILDING TYPE:

- ☐ Enclosed
- ☐ Partly enclosed
- ☐ No structure

BUILDING CONDITION:

- ☐ Sound
- ☐ Deteriorating
- ☐ Dilapidated

____ Stories

☐ Building Vacancy _____

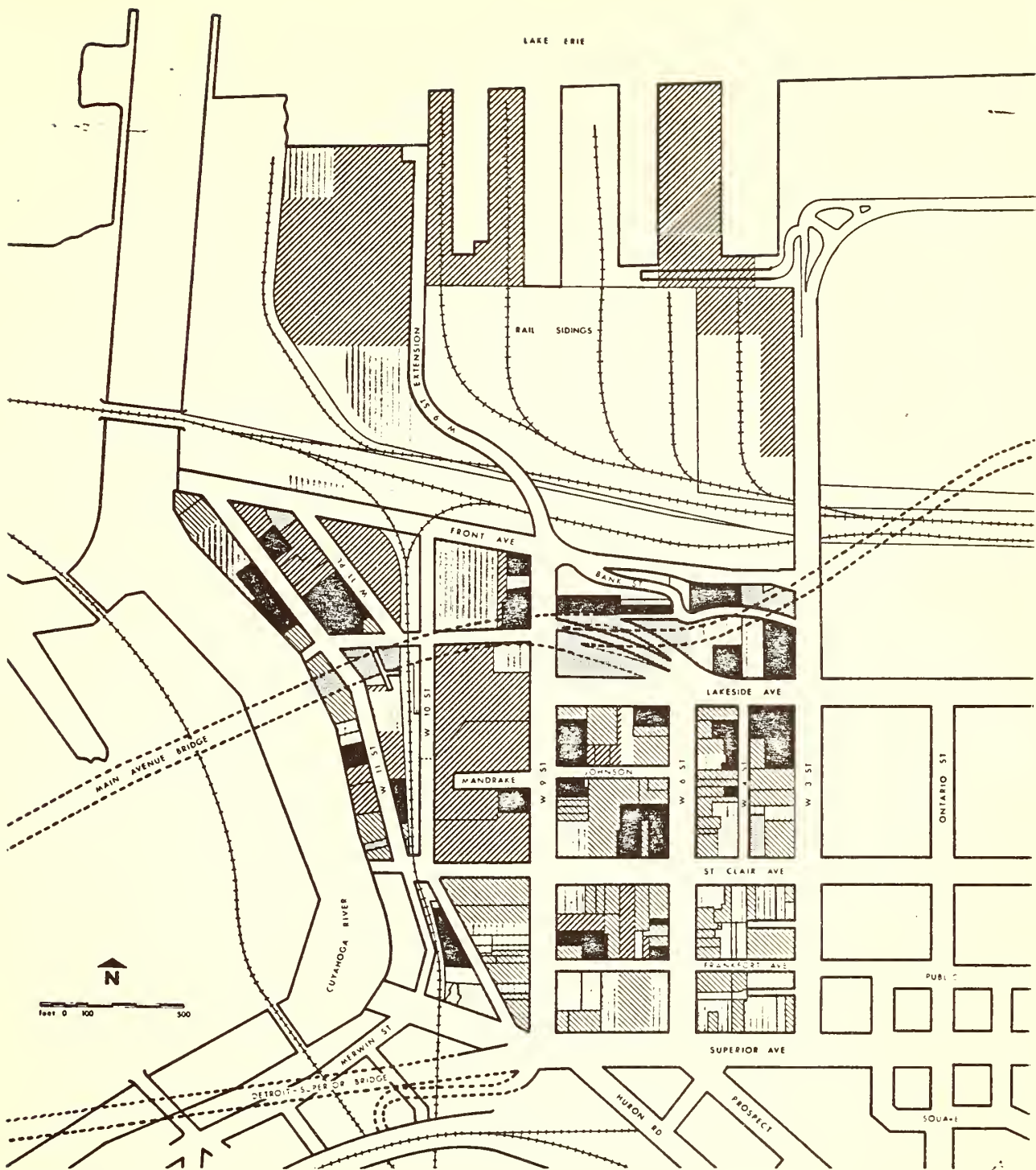


EXHIBIT E27

EXISTING LAND USE

AREA "A" - DOWNTOWN



EXHIBIT E28
 BUILDING CONDITIONS
 AREA "B" - GLADSTONE

SOURCE: FIELD SURVEY, JUNE 1967
 SOUND
 DETERIORATING
 DILAPIDATED

1/2

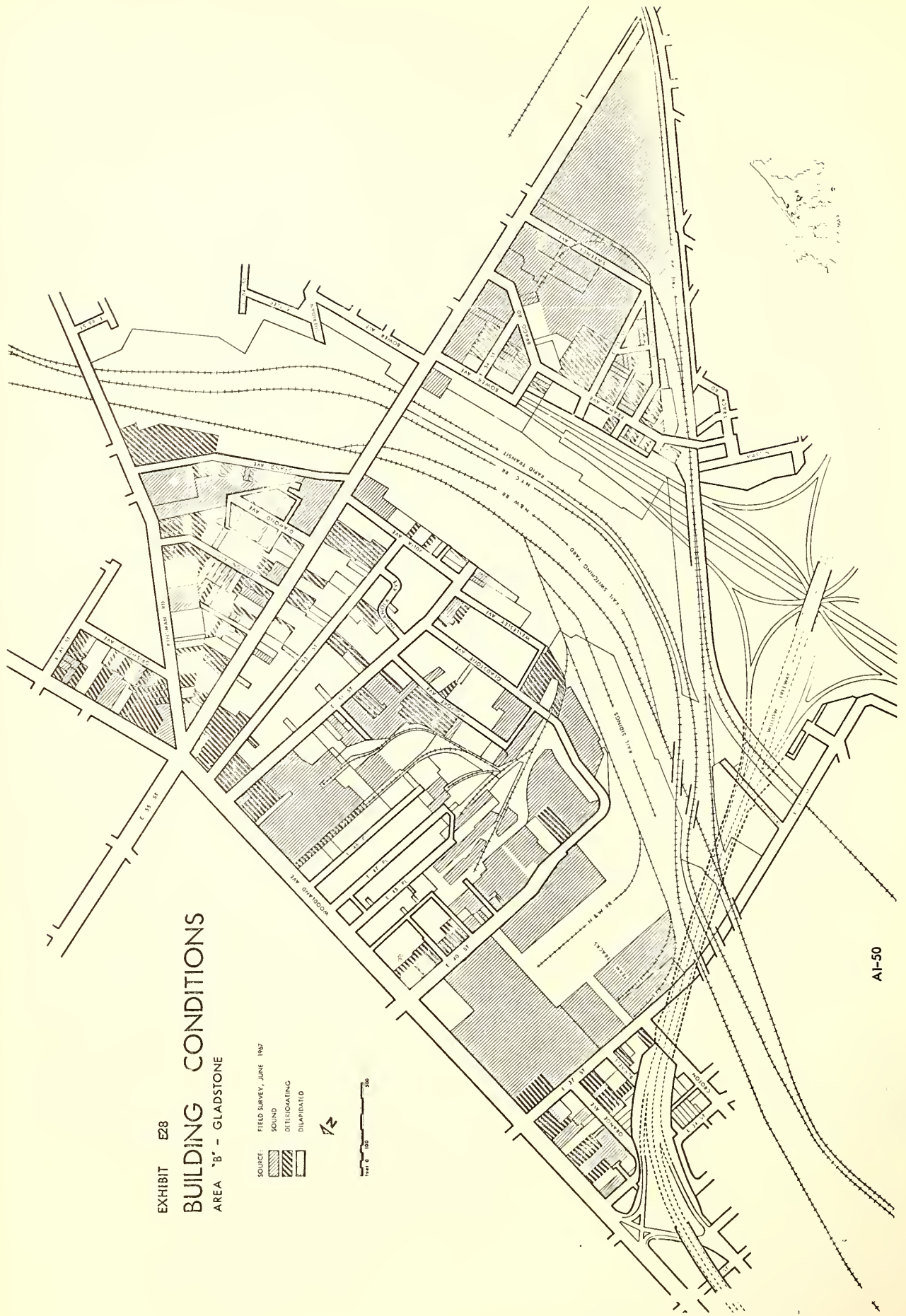
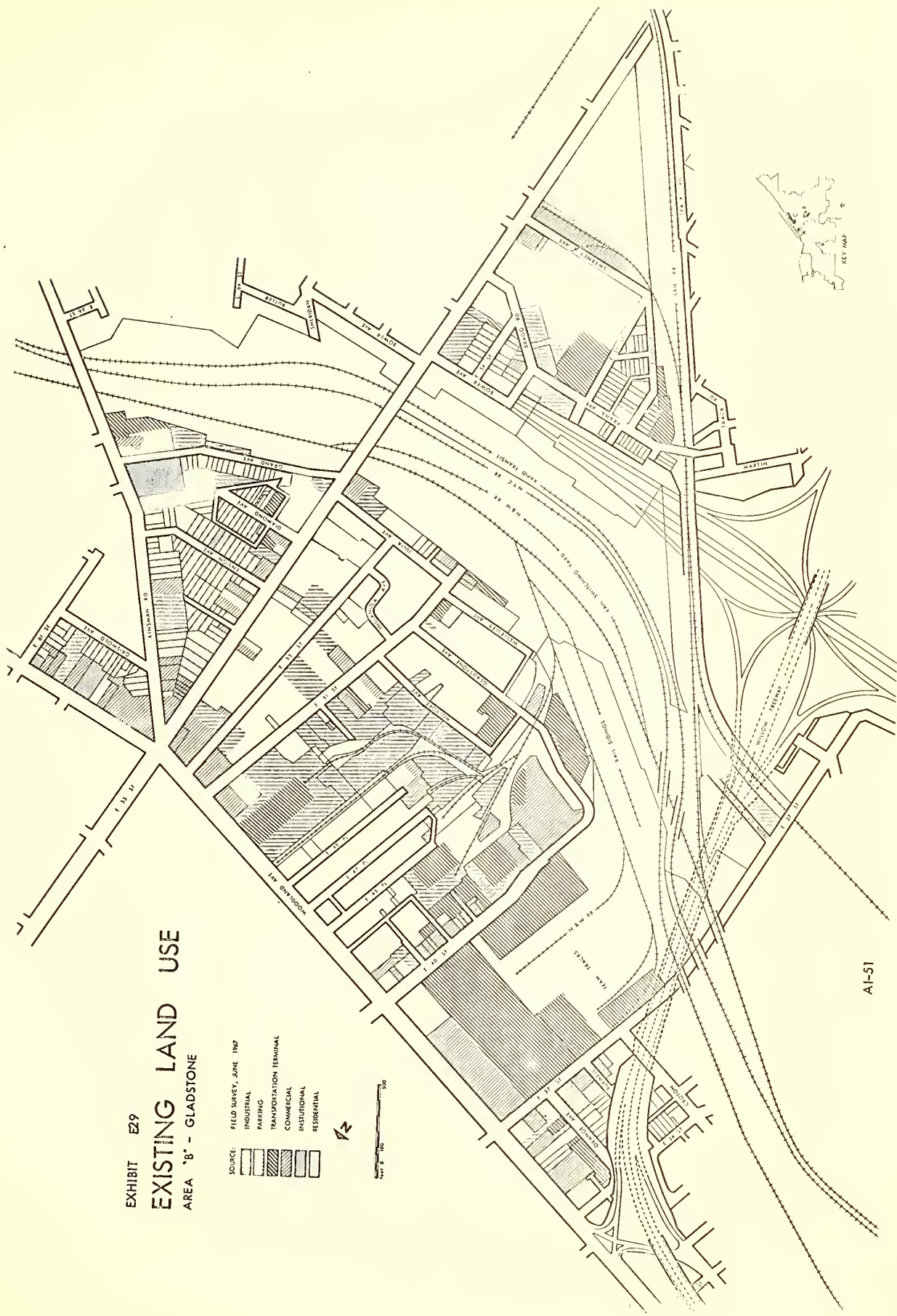


EXHIBIT E29
 EXISTING LAND USE
 AREA "B" - GLADSTONE

SOURCE: FIELD SURVEY, JUNE 1967

[Pattern]	INDUSTRIAL
[Pattern]	PARKING
[Pattern]	TRANSPORTATION TERMINAL
[Pattern]	COMMERCIAL
[Pattern]	INSTITUTIONAL
[Pattern]	RESIDENTIAL



AI-51

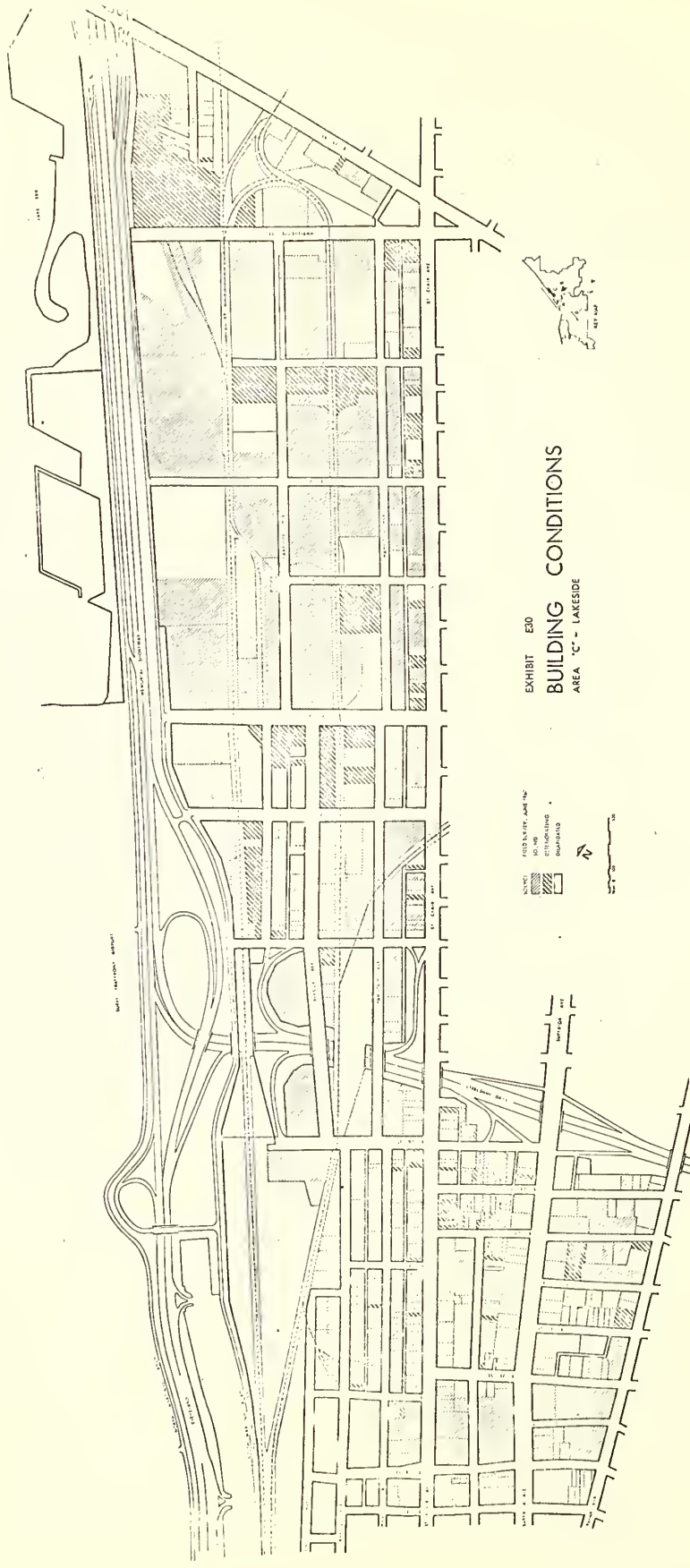


EXHIBIT E30
BUILDING CONDITIONS
AREA C - LAKESIDE

APPENDIX 2

PROTOTYPE BUILDING ONE DESIGN DEVELOPMENT

FOOD INDUSTRY

SECTION A - SOIL ANALYSIS

SECTION B - STRUCTURAL ANALYSIS

**SECTION C - MECHANICAL AND ELECTRICAL
SYSTEMS ANALYSIS**

SECTION D - MATERIAL HANDLING ANALYSIS

SECTION E - BUILDING PROGRAM AND DESIGN

PROCEDURE

An investigation and evaluation of existing soil conditions of the Gladstone site was conducted.

The structural engineers indicate that maximum column loads in the range of 2,000,000 to 4,000,000 lbs. per column may be anticipated depending on the number of column supported floors, eight to twelve, required. The above is based on an approximately 30 foot square bay column spacing.

Man-deposited fill material was encountered to depths of 6 to 10 feet below the existing grade. Strata of fine to medium coarse sand with varying amounts of silt and silt and clay seams extend from the bottom of the fill to a depth of 58 and 47 feet respectively in Borings B-1 and B-2. This material is in turn underlain by strata of silt and clay in descending order.

Well points were set in each test hole to permit observation of ground water levels over an extended period of time. Water was observed to be standing in the test holes at depths of 22.8 and 18 feet below the then existing ground surface approximately two weeks after completion of the drilling. The lower water levels reported immediately after completion of drilling and setting of the well points may be attributed to temporary changes in the permeability of the soil caused by mudding up of the sides of the hole during drilling. Reported water levels are an indication of conditions existing at the time and point of observation only. Some fluctuation may be anticipated depending upon the season and amount and rate of precipitation.

FINDINGS

Dewatering of the site will be required for construction work at depths in excess of 18 feet, approximately, below the present grade. The presence of seams of relatively impervious material within the sand stratum may require multi-stage dewatering. If floor levels are to be placed below the existing ground water level, some consideration must be given to a permanent dewatering system or to incorporate resistance to hydrostatic pressure in the design of the floor, walls and foundation system.

The granular soil on the site above the water table may be temporarily stable on a slope of approximately 1-1/2 horizontal to 1 vertical. A braced or anchored retaining structure will probably be required. The overall stability of the site during excavation and construction will be evaluated at a later date.

The gray clay stratum encountered beneath the site is a plastic, compressible material demonstrating low unconfined shear stresses. This stratum will influence the allowable soil bearing pressures and type of foundation system which may safely be used. The degree of this influence will depend in large measure on the site and proximity of foundations to the clay stratum. The probable magnitude of settlement will be evaluated after the shape of the structure, its exact location, and load, are established.

Soil bearing pressures in the order of 3,000 to 4,500 lbs. per sq. ft. may be sustained within the sand strata. Depending upon the distribution and magnitude of the imposed loads, consideration can be given to a combined, or raft type foundation. This type of system may additionally offer a method of economically dealing with the possibility of hydrostatic uplift on the lowest level floor slab.

Caissons are not indicated due to the absence of any high bearing capacity stratum with reasonable depths. The depth to rock makes the use of end bearing piles prohibitive. Friction piles may offer a means of supporting high load concentrations but present serious problems in maintaining total and differential settlements within tolerable limits. Their use is not recommended for this application.

A careful review of the building locations, requirements, and load distributions should be made as soon as this information has been defined. A program of field investigation and analysis to determine the pertinent engineering criteria for substructures should be done at that time.

PROCEDURE

The purpose was to make a structural framing study for the prototype building, specifically of a poured in place concrete framing system for a typical bay required for varying load and span conditions. Separate analysis was made of the manufacturing and processing areas located on upper floors, and material distribution areas, located on lower floors.

In the manufacturing and processing areas two bay sizes were studied, 30'-0" x 30'-0" and 30'-0" x 60'-0". The 30'-0" x 30'-0" bay was established as being most suitable. (See Exhibit E9 and E10). Because of flexibility requirements for the mechanical system, a continuous horizontal duct and pipe chase has to be provided, necessitating a split beam and column structural system in certain areas. Therefore, a two way framing system was not considered and a one way joist and beam system was analyzed. Mechanical ducts and piping may be placed between joists and the space covered by a panel attached to the bottom of joists.

The material distribution areas require a structural design to support heavy live and heavy concentrated loads. A slab, beam girder framing system was chosen and analyzed. Three different bay sizes were required to provide adequate maneuvering space for the truck driveways and docking areas. The three structural bay sizes analyzed in depth were: 30' x 30', 30' x 60' and 60' x 60'.

FINDINGS

The live load requirements for various types of occupancy can be summarized as follows:

- 75 psf parking and for passenger vehicles
- 100 psf offices, public assembly, restaurants, corridors and lobbies, light manufacturing
- 125 psf commercial, light manufacturing, libraries
- 150 psf vehicles having a gross weight of 3 to 10 tons; manufacturing, light storage
- 175 psf manufacturing, storage
- 200 psf vehicles above 10 tons, except trailer trucks; heavy manufacturing, storage
- above 200 psf special heavy manufacturing, storage, trailer trucks

The possibilities of a structural steel frame and a precast concrete system were investigated and determined to be inappropriate for the following reasons:

Structural Steel Frame

- Fireproofing - ceilings, in most areas will not be used, thus any fireproofing material will be exposed. The most economical type of steel fireproofing is a sprayed on material. However, this material will cause dusting, which is not acceptable in food processing areas. The only method of fireproofing would be pouring of concrete around beams and columns, which is expensive.
- Concentrated loads are expected to be placed on the floor. A poured in place concrete floor system is capable of distributing concentrated loads better than a steel frame.
- Some of the machinery may cause vibrations in the building. A poured in place concrete floor system has a better dampening capacity than a steel frame.

Precast Concrete System

- Truck loading areas will require changes in floor elevations in order to provide docking facilities. This is difficult to accomplish with precast concrete.

- Due to mechanical requirements, precast beams and slabs would have to be placed on top of girders, thus increasing the height and volume of the building considerably.
- Stability of a building of this height would be difficult to achieve.
- A precast concrete floor system is not well suited for the distribution concentrated loads.

PROCEDURE

In making the mechanical and electrical study, certain objectives were initially determined.

The performance specifications for major industrial and environmental processes were defined through code search and general research. This included the public services presently available on the site and/or readily brought to the site, and building service systems required to serve the human occupancy needs and industrial process needs of the proposed building.

Design priorities and evaluation of potential solutions were established keeping as goals the prevention of functional obsolescence, minimum interference to building tenants when future changes are made, and the need for competitive low cost space.

Utilities and mechanical services were classified in regard to the following distribution categories:

- Basic services to the boundary of the site only.
- Basic services that are brought to the building or structure.
- Basic services that are brought to each floor or structural unit.
- Basic services that are brought to each service zone on the floor.
- Basic services that are brought to the end use.

FINDINGS

Within the general industrial context, the "end service" will vary quite significantly with the individual tenants. To minimize the tendency toward "functional obsolescence" it is visualized that there should be no "end service" provided in a multi-tenant building of this type. The building design should be limited to the provision of space arrangement concepts within which future distribution networks can easily be installed by individual tenants to meet their specific needs.

A system of one or more service tunnels or troughs would be used to link the building with the major utility service outlets located within the public right-of-way. These would permit maintenance and physical changes without the need for disrupting excavations.

There would be one or more central service distribution centers within the building. This would serve as a termination point of some services and the starting point from which other services would be distributed to each floor. (See Exhibits E11 and E12)

In order to facilitate easy distribution of these services from the distribution centers, a well-defined and easily accessible service network of horizontal and vertical service ducts should be provided. A split column and beam structural system would be used to provide space for the required service ducts. This network would provide space for future changes and maintenance with minimal disruption.

The services to be distributed throughout the building would be capped at each floor. The tenants should be responsible for installation and maintenance of the services within their own area, from these major distribution locations on each floor.

Access to the top deck or roof would be included in the service network. A future tenant could then be allocated space for special roof-mounted equipment including water pressure control for process water and fire control, electrical service equipment, air handling units and ventilators, refrigeration systems, and liquid storage related to his process.

After the required utilities and services were selected and the distribution network established, the extent of services provided as part of the base building and the locations of these services in the building were determined. The actual mechanical and electrical systems as determined for Prototype Building One is discussed in Chapter 2 and in Appendix 2, Section E, dealing with the building program and design.

PROCEDURE

The purpose of this study was to establish guidelines for material handling requirements which are applicable to any size multi-level building used for the food processing operations. The procedures followed in this study are outlined in a series of charts included in this section. There are basically two major divisions to this study: The first involves facilities for receiving and shipping; the second involves internal material handling systems.

Initially, assumptions were made as to the types of tenants of the building, its size, and available space (see Chapter 1). Data was gathered from interviews with food processors, from United States government statistical sources, from railroad and trucking companies, from food industry observation and surveys. A projection was made as to annual tonnage processed within the building (see Exhibit E1) and this became the basis for establishing the railroad car spots, truck dock spaces and internal material handling requirements for a building of the size we assumed. All of these required material handling facilities are in direct ratio with the total useable square footage; therefore, if the size of the final designed building is smaller, or larger, the material handling requirements would be reduced or increased proportionately.

FINDINGS - RAIL

It was concluded that 38 railroad car spots would be needed to adequately serve the 7-story building which was the basis of this study (see Exhibit E2). Rail spots should be provided adjacent to covered platforms, preferably inside the building. Three alternative track-platform configurations were proposed:

- Two rail tracks 950 feet long, each with a 19 car capacity, each track having direct access to a loading platform. This was recommended as the most efficient method.
- Four tracks, 500 feet long, each with a 10 car capacity, requiring through-car loading and unloading on the inside of two tracks. This method is about half as efficient as the first.
- Use of an open, team track area at ground level with cars loaded and unloaded from that point. This would be the least efficient method, and not appropriate for a multi-level building.

FINDINGS - TRUCK

It was also determined that 97 truck dock spaces would be required (see Exhibit E3). However, an additional holding area, located away from the loading-unloading docks, was suggested. The recommended capacity is twice the number of docks or approximately 200 truck spaces.

FINDINGS - INTERNAL SYSTEM

In determining the internal material handling, several mechanized and automated systems were evaluated in terms of speed of transporting materials (pounds per minute) and operating costs (dollars per pound of product moved). Automated systems such as conveyors, chain-veyors, monorails, etc. were eliminated because of their low speed, low amount of pounds transported per minute, high maintenance cost, and limited flexibility.

The recommended internal material handling system is a combination of industrial fork lift trucks with standard wooden pallets and high speed (300 feet per minute) high volume (6 tons or 4 pallet capacity) industrial freight elevators. This best fulfills the requirements of a multi-level industrial building which has a large volume flow of commodities requiring flexible, rapid horizontal transportation and high speed, economical vertical movement.

After determining the number of elevator round trips per day, two material handling methods were considered to determine the number of elevators needed to satisfy the requirement (see Exhibit E4). The recommended number of 11 elevators is based on the need to minimize waiting time during peak shipping and receiving periods and to insure continued service in case of unscheduled overloads, breakdown and maintenance. Each elevator would serve a specific floor. However, the number serving each floor would depend on the operating characteristics of the tenants. Within this general context, two alternative plans are suggested:

- One elevator would serve each of the first and second processing floors; two elevators could serve each of the third through sixth floors; the all floor elevator would serve each floor as needed.
- Install 13 elevators and provide each processing floor with two elevators, plus the one all-floor elevator.

The following are the recommended elevator characteristics:

- Located to permit entry from opposite sides; centrally situated to minimize travel distance from railroad cars and truck docks.
- Able to accommodate pallets side-by-side to allow movement of each pallet without disturbing others.
- Speed of 300 feet per minute or more, depending on manufacturer's suggestions.
- Minimum car capacity of 8,000 pounds, with floor size at least 8 1/2 x 10 feet.
- Overhead, lift type, counter-balanced doors across entire width of car, at both ends. (Self-opening and closing doors, activated by pressure-sensitive switches or photo-electric cells would be ideal but would triple the installation cost and double maintenance cost.)
- Self leveling features.
- Gap between car floor and building floor no more than one inch to allow for use of 6 inch diameter wheels on pallet-handling trucks.

The pallet storage area walls should be located on column centers to minimize lost space. Ceilings should be at least 12 feet high to permit two-high stacking of pallets, or 14.5 feet high to permit three-high stacking. If fork lift trucks are to stack pallets at right angles to the aisles, aisles must be at least 10 feet wide.

The above conclusions and recommendations have been used as the basis for determining the material handling system in Prototype Building One, with modifications made based on the final building design. The material handling system is discussed in the context of the building description in Chapter 2 of the report and in Appendix 2, Section E.

EXHIBIT E1

DETERMINATION OF ANNUAL TONNAGE PROCESSED

	ALLOCATION ¹		Car-Lot Equiva- ² lent Factor (C.E./Sq.Ft.)	Cor-Lot ² Equiva- Lents	Total Ton- ³ nage at 20 Ton C.E.	INBOUND ⁴			OUTBOUND ⁴			Total Rail ⁵ Tonnage	Total Truck ⁵ Tonnage
	Per Cent	Square Feet				Rail Per Cent	Tonnage	Truck Per Cent	Rail Per Cent	Tonnage	Truck Per Cent		
Vending and catering	25	135,900	.0175	2,378	47,560	5	2,378	95	-0-	-0-	100	47,560	92,742
Meat and fish	20	108,800	.0232	2,524	50,480	40	20,192	60	10	5,048	90	45,432	75,720
Sausage	15	81,400	.0210	1,709	34,180	40	13,672	60	10	3,418	90	30,762	51,270
Prepared foods	15	81,400	.0175	1,425	28,500	10	2,850	90	-0-	-0-	100	28,500	54,150
Bakery-noodles	15	31,400	.0140	1,140	22,800	5	1,140	95	-0-	-0-	100	22,800	44,460
Frozen food-ice cream	10	54,300	.0138	749	14,980	15	2,247	85	5	749	95	14,231	26,964
Total	100	543,200		9,925	198,500		42,479			9,215		189,285	345,306

1. Six different types of food processors were assumed as co-tenants. The building was assumed to consist of six food processing floors and one common shipping and receiving floor. Total building equals seven floors at 97,000 square feet per floor; assumed at 80% efficiency or 543,200 square feet. Space was allocated to each processing type according to the actual business profile in Cleveland.

2. Car-lot equivalent factors for each industry were determined through analysis of various actual food processing operations. Annual car-lot equivalents processed were divided by total square feet of the facility.

3. For this study, the definition was standardized at 20 tons of material processed. Total tonnage processed is the product of total square feet for that industry times the corresponding car-lot equivalent factor times 20 tons per car-lot equivalent. Waste and rubbish handling were not included in this study. Tonnage processed was assumed constant for purposes of shipping, receiving and processing.

4. Inbound and outbound tonnage was allocated to rail and truck movement by use of allocation percentages determined from analysis of several actual food processing operations and from a previous survey of Cleveland area food processors and distributors.

5. Annual tonnage figures are the basis for calculating the number of truck dock spaces, railroad car spots and internal material handling requirements.

EXHIBIT E2

DETERMINATION OF RAILROAD CAR SPOTS

	Total Rail Tonnage	Average Load Tons Per Rail Car ¹	Actual Number Rail Cars ²	Number Rail Spots ³	Peaking Factor ⁴	Actual Rail Spots Needed ⁵
Vending and catering	2,378	16	149	.48	2.0	.96
Meat and fish	25,240	12	2,103	6.74	3.0	20.22
Sausage	17,090	14	1,221	3.91	2.5	9.78
Prepared foods	2,850	12	238	.76	2.5	1.90
Bakery-noodles	1,140	8	143	.46	1.5	.69
Frozen food-ice cream	2,996	10	300	.96	4.0	3.84
TOTAL	51,694		4,154	13.31		37.39
			TOTAL	14.00		38.00

1. Average load tons for each industry were developed from railroad car loading statistics and from interviews with railroad operations personnel.
2. Tonnages to be handled by rail were converted to number of railroad cars by dividing by the average load tons per car for each industry.
3. Assumed six day per week operation or 312 working days per year, and one rail spot per car per day. Divided number of cars needed for each industry by 312 days, giving total minimum of 13.3 rail spots.
4. Peaking factors, which would place additional demands on physical rail facilities at certain times, were determined from an analysis of actual rail-served food industries and from interviews with railroad personnel.
 - a. An imbalance exists in that 4/5 of railroad tonnage is inbound and 1/5 outbound. Empty cars must be removed from docks before inbound loaded cars can be spotted.
 - b. Railroad cars arrive at and must be removed from the facility at specific times according to train schedules.
 - c. Receiver has 48 hours to unload inbound cars starting from the first 7 a.m. following notification that cars are ready for unloading. Car turn-around is longest for receivers of agricultural products and railroad refrigerator cars.
 - d. 48 hours of additional holding time is allowed on any car that is to be loaded for shipping.
 - e. Time for loading and unloading depends on availability of and productivity of personnel and railroad car switching crews.
5. Based on application of peaking factors to minimum daily rail spots required.

EXHIBIT E3
DETERMINATION OF TRUCK DOCK SPACES

	INBOUND ¹			OUTBOUND ¹			Total Number Trucks Inbound and Outbound ²	Average Daily Number of Trucks ³	Number Truck Spaces for 50% of Total Operation During 1st Shift ⁴	Peaking Factor ⁵	Actual Number of Truck Dock Spaces Needed ⁶
	Total Truck Tonnage	Average Load Tons Per Truck	Actual Number Trucks	Total Truck Tonnage	Average Load Tons Per Truck	Actual Number Trucks					
Vending and catering	45,182	7	6,455	47,560	1	47,560	54,015	173.1	14.4	3.0	43.2
Meat and fish	30,288	10	3,029	45,432	3	15,144	18,173	58.2	4.9	2.5	12.3
Sausage	20,508	10	2,051	30,762	3	10,254	12,305	39.4	3.3	2.0	6.6
Prepared foods	25,650	8	3,206	28,500	2	14,250	17,456	55.9	4.7	2.0	9.4
Bakery-noodles	21,660	4	5,415	22,800	1	22,800	28,215	90.4	7.5	1.0	7.5
Frozen food-ice cream	12,733	6	2,122	14,231	1	14,231	16,353	52.4	4.4	4.0	17.6
TOTAL	156,021		22,278	189,285		124,239	146,517	469.4	39.2		96.6
							TOTAL		40.0		97.0

1. Assumed that inbound freight would be received in tractor-trailer trucks and outbound shipped in small, van type trucks.
2. Based on average load tons per truck computed for inbound and outbound freight.
3. Assuming six day per week operation or 312 working days per year.
4. Based on experience in truck operations for food processing businesses and using engineered time standards for loading and unloading with an industrial fork lift truck and standard pallets. Each dock space can handle 6 trucks per 8-hour shift based on a loading or unloading factor of 33.9 minutes per ton including truck positioning, parking and dispatching. These calculations are based on the assumption that 50% of all truck movements would take place during the first eight-hour shift.
5. Consideration of peaking factors would place additional demands on docking facilities.
 - a. Commodities received early in the first shift, shipments made late in the first shift or early in second shift.
 - b. Frozen food processing requires fast delivery of processed foods, which are generally in large volume batches.
 - c. Food retailers, the major outlet for processed food products, sell to public from about 10:00 a.m. to 6:00 p.m. and must have time to receive and display or stock their products.
6. Based on application of peaking factors to the number of truck docks required for the 1st shift.

EXHIBIT 54

DETERMINATION OF MATERIAL HANDLING REQUIREMENTS

	Total Annual Receipt and Truck Tonnage			Average Load Per Pallet (Pounds)/2			Average Daily Number of Pallet Moves/3			Number of Elevator Round Trips at 4 Pallet Moves Per Round Trip/4			Total Elevator Travel Time at 10.2 Minutes Per Round Trip/5			Number of Elevators Needed Assuming One 8-Hour Shift/6			Total Elevator Travel Time at 4.2 Minutes Per Round Trip/6			Number of Elevators Needed Assuming One 8-Hour Shift/7	
	Inbound	Outbound	Total Annual Tonnage	Average Daily Tonnage/1	Average Load Per Pallet (Pounds)/2	Average Daily Number of Pallet Moves/3	Number of Elevator Round Trips at 4 Pallet Moves Per Round Trip/4			Total Elevator Travel Time at 10.2 Minutes Per Round Trip/5			Total Elevator Travel Time at 4.2 Minutes Per Round Trip/6			Number of Elevators Needed Assuming One 8-Hour Shift/7			Total Elevator Travel Time at 4.2 Minutes Per Round Trip/6			Number of Elevators Needed Assuming One 8-Hour Shift/7	
Vending and catering	47,500	47,500	95,000	304.8	1,200	508.0	127.0			1,295.4			533.4										
Meat and fish	50,480	50,480	100,960	323.6	1,600	404.5	101.1			1,031.2			424.6										
Sausage	34,180	34,180	68,360	219.1	1,600	273.9	68.5			698.7			287.7										
Prepared foods	28,500	28,500	57,000	182.7	1,000	365.4	91.4			932.3			383.9										
Deli-carry-noodles	22,800	22,800	45,600	146.2	500	584.8	146.2			1,491.2			614.7										
Frozen food-ice cream	14,980	14,980	29,960	96.0	1,400	137.1	34.3			349.9			144.1										
TOTAL	196,500	196,500	397,000	1,272.4		2,273.7	568.5			5,798.7			2,387.7			12.1			2,387.7			5.0	
										Therefore use:			Therefore use:			13.0			Therefore use:			5.0	

1. Assuming 6 day per week operation or 312 days per year.
2. Developed from data of United States Department of Agriculture and verified by several local food processors.
3. Determined by dividing tonnage by average weight per pallet load.
4. Assumed that the average round trip would move two pallets of inbound material to tenant floor and two pallets of finished product out to shipping floor.
5. One-man operation: loading two pallets onto elevator from truck unloading area, travel to tenant floor, unloading two pallets to storage area, loading two pallets onto elevator from storage, traveling to loading dock, unloading two pallets to truck loading area.
6. One-man operation: loading two pallets onto elevator from area adjacent to elevator, traveling to a tenant floor, unloading two pallets to area adjacent to elevator, loading two pallets onto elevator from area adjacent to elevator, traveling to loading dock, unloading two pallets to area adjacent to elevator. This method requires additional material handling personnel to move pallets to and from the temporary holding areas adjacent to the elevators.
7. Number of elevators should be doubled, plus one common all-floor elevator to provide for peak loading and unloading periods and elevator downtime.

Therefore use: $(2 \times 5) + 1 = 11$ elevators.

In the section which follows, the program and design of Prototype One are discussed, setting forth the food industry tenant requirements and the suggested design solution. The design criteria are general in nature so that the resulting tenant space could be used by many types of food processing operations. The text covers the following:

- General Planning Requirements
- Physical Site Requirement
- Building Description
- Physical Building Requirement

GENERAL PLANNING REQUIREMENTS

This has developed from a thorough investigation of existing characteristics of the site and the surrounding area so that a program of land use functions, linkages, land acquisition, and thoroughfare planning can develop within a realistic framework. Following are the individual factors which were considered:

- Examination of the general land use structure of the surrounding area: This identified the compatability of the proposed use with its surrounding industry and indicated its proximity to support uses such as residential enclaves (employment market), and the central business district (product market). (See Chapter 2, Exhibit E1)
- Relationship to existing urban renewal and economic redevelopment programs: This project's proximity to these programs indicates it could give additional impetus to the revitalization of this deteriorating area of the City and that these programs can lend mutual support to eachother. (See Chapter 2, Exhibit E2)
- Inventory and recording of existing area and site conditions: The evaluation of land and buildings indicates that a large portion of area is vacant land; many of the existing buildings are vacant or partially vacant and have been purchased or will be purchased by the City which plans to raze them. (See Chapter 1, Exhibits E27, E28, and 29).
- Evaluation of land assembly and flexibility for expansion: Since the entire selected site is owned by the City of Cleveland, no work has to be done to assemble the land for a redevelopment project. In addition, this site is large enough for future expansion of the proposed redevelopment project. (See Appendix 1, Exhibits E28 and E29).

- Land Costs: Land costs of this Gladstone site are lower than the other two selected sites, and generally lower than other industrial sites in Cleveland. Originally, the resale cost of the land was approximately \$2.25 per sq. ft. In 1968, the City reduced the cost to \$1.25 per sq. ft.
- Evaluation of locational advantages of the site. (See Chapter 2, Exhibits E1 and E2.)
 - a. Five minutes from downtown Cleveland.
 - b. Central location for greater Cleveland.
 - c. Adjacent to related food industry.
 - d. Adjacent to potential labor market in the selected neighborhoods.
 - e. Close proximity to Model Cities area.
 - f. Adjacent to proposed Cleveland Board of Education Woodland Job Center.
- Evaluation of accessibility to the site. (See Chapter 2, Exhibits E3, E4, and E5.)
 - a. Expressway: The site is within a half mile from a major freeway interchange.
 - b. Rail: Rail access is available from spur tracks located immediately to the south of the site.
 - c. Public transportation: There is excellent public transportation to the site. The site fronts on Woodland Avenue on which there are five different bus routes; in addition, there are many other bus routes on adjacent streets in the area. At 55th Street there is also a rapid transit stop for both the Cleveland and Shaker lines.
- Evaluation of relationship with the surrounding area: (See Chapter 2, Exhibit E1 and E2.)
 - a. Pedestrian linkage: Prototype One is proposed to be located on the eastern portion of the site, adjacent to the vocational training school so that they could assist each other in job training programs. The major pedestrian entrance to the building is on Woodland Avenue to relate to bus stops, car drop-offs, and public housing across the street.
 - b. Adjacent land uses and buildings: The building is designed so that the tall processing tower is recessed from the property lines; the lower support facilities

extend to the property lines. This is done in an effort to keep the building in scale with the surrounding buildings which are two and three stories. In addition, this also minimizes the problem of casting shadows on the residential enclave located directly across Woodland Avenue.

- c. Control of smoke, dust, fumes, and odors: The mutual effects of the proposed facility and the surrounding area on each other were considered. The prevailing winds are from the northwest in the Cleveland area; therefore, any of these nuisances, of which there are few, from the surrounding industry would not be detrimental. On the other hand, nuisance from the food industry tenants of the building would not be a problem, if waste collection and disposal are adequately provided as part of the building's mechanical system.
- Evaluation of vehicular circulation for the site and surrounding area in order to alleviate traffic congestion: (See Chapter 2, Exhibit E5, E6 and E7).
 - a. Major thoroughfares: Woodland Avenue should be widened in front of the proposed facility in order to accommodate both right and left hand turning lanes for cars into the parking garage, a drop-off lane in front of the major entrance to the building, and right and left hand turning lanes into East 40th Street for the trucks.
 - b. Minor thoroughfares: East 40th Street should be widened in order to accommodate heavier volumes of truck traffic serving the area and north and south bound access ramps to the proposed service road south of the site.
 - c. Service roads: A depressed service road for trucks has been designed, located south of the proposed facility. This will eliminate the possibility of the truck traffic congesting and inhibiting the automobile traffic in the area. This will not only serve this first stage of development, but will serve later developments on both sides of the roadway. The new depressed service road is designed for one-way traffic movement with the entrance ramps from East 40th Street and the exit ramp discharging the outward bound trucks onto East 51st Street.

PHYSICAL SITE REQUIREMENTS

The site requirements are functionally and visually part of the general planning requirements and have been related to the surrounding area. The objective is that each foot of urban land be designated for a specific functional use such as construction, parking, circulation, or

landscaping. Through investigation and analysis of the relationship of these activities, the site plan creates a proper balance of land use for a pleasing environment as well as a workable blending of functional activities. Following are the factors which were considered:

- Staging system: (See Chapter 2, Exhibit E7). If the ultimate proposed facility is large in scale, as it is in this situation, it is important that it can be built in stages so that each stage is in proportion with the market needs and developer capabilities. In this case, the 13 level Prototype One facility is the first part of a four stage development. Each subsequent stage would consist of facilities similar to those in Prototype One, with commercial, office, truck, rail and automobile facilities in the lower levels and processing areas located in a high rise tower.
- Separation of individual functions: The individual functions to be carried on within the site are:
 - a. processing
 - b. office
 - c. retail
 - d. parking garage
 - e. rail facilities
 - f. off-street holding, maneuvering and docking space for trucks

These should be separated so that they do not interfere with each other, yet they still have to be connected so that the entire facility functions as a whole.

- Maximum site unity (functional and balanced use of land): In order to make sure that the site functions properly, it is important that all functional uses be in balance with each other, adequate to meet the need of the tenants and advantageously located on the site to insure maximum efficiency.
- Adequate circulation system:
 - a. Separate entrance lanes for trucks and cars: It was felt that it would be advantageous to separate the two different types of traffic so that each would not restrict the flow of the other. The Gladstone Urban Renewal Standards state that trucks cannot enter a terminal or depot directly from Woodland Avenue. Therefore, it was felt that Woodland would be an ideal location for the entrance to the automobile parking structure. The elimination of truck entrances from Woodland Avenue is also in accord with our plans of eliminating as much congestion as possible from this major artery. All trucks would enter Prototype

- Building One from the new depressed service road which has its access off East 40th Street.
- b. Off-street holding, maneuvering, and docking space for trucks: In order to fulfill the trucking requirements of the facility, the lowest two levels of the facility are designed entirely for truck uses. With these functions within the building, congestion in the streets is minimized; this eliminates a condition which presently exists since many food industry firms have loading docks adjacent to the street.
- c. Parking for employees and guests: The zoning ordinance requires one parking space for every two employees. However, the accessibility of public transit and a near-by labor market were modifying factors in planning the parking facility, since it was believed that many employees would walk or use public transit. Therefore, the final parking provision is for 495 cars in a four-level parking structure.
- d. Rail facilities: Many food industry firms need rail facilities for receiving produce, meat, etc. Therefore, provision has been made for rail facilities. There are two existing rail spur tracks at the eastern edge of the property. It is planned to make use of them by situating the facility adjacent to the tracks, roofing over the tracks and providing loading docks for tenant use.
- Zoning and urban renewal standards: This study used the Cleveland Zoning and Building Codes and the Gladstone Urban Renewal Project Plan dated May, 1957. During the course of the study an Amendatory to the Gladstone Plan was being prepared and was submitted for approval in June, 1968. Since neither the original Gladstone plan or the Amendatory contemplate use of multi-level industrial facilities, many of the restrictions would have to be modified in order to permit meaningful development of a multi-level industrial building:
 - a. Setbacks: The setback on Woodland Avenue is 10 feet; East 40th Street, 25 feet and the side and rear yards 15 feet. With the widened right-of-ways as proposed in this study to handle the increased vehicular and pedestrian movements, it is suggested that this new facility be allowed to build right up to the property line.
 - b. Building coverage: The Urban Renewal Documents state that no structure shall occupy more than 40 per cent of the net site unless it is erected solely for warehouse use and then the coverage shall not be in excess of 60 per cent of the net site. In

order to take advantage of scarce urban industrial land, a new multi-level structure, which will include parking and truck maneuvering and docking space, would have to cover almost 100 per cent of the site.

- c. **Building Heights:** Along Woodland Avenue, the height limitations are 115 ft. The rest of the selected site is 175 ft. In this study, it did not cause any difficulty with the first stage of development, because the high processing tower is away from the street. However, in the future stages it could be a limiting factor.
- d. **Parcelization:** In the Gladstone Renewal Plan, the land parcels are small to encourage development by smaller companies. In order to give access to the small parcels, new streets are proposed as part of the Gladstone Renewal Plan, which would limit the size of a development. This concept of parcelization limits the use of multi-level structures as contemplated in this study.
- e. **New Streets:** New streets will have to be designed in such a manner that large tracts of land are available for efficient multi-level facilities.
- **Adequate utilities:** The utilities to the site including water, sewer, gas and electric, are adequate to meet the building's needs.
- **Safety and security:** In order to insure the safety of the tenants, the following features were provided:
 - a. Controlled building entrances
 - b. Central building security
 - c. Enclosed and controlled car parking for employees and guests
 - d. Enclosed and controlled truck docking
 - e. Enclosed and controlled train docking
- **Pleasing aesthetic form:** The facility has to be designed in such a manner that it has the following features:
 - a. Pleasing aesthetic form that is sympathetic to its surroundings.
 - b. Identity or visual image that is representative of its use.

BUILDING DESCRIPTION

- The building structure contains approximately 1, 110,000 sq. ft. of which 35% is rentable floor space for industrial and commercial activities.
- a. The structure consists of 2 sub-grade levels and 11 other levels. (See Chapter 2, Exhibits E8 through E18).
 - The 2 sub-grade levels are primarily for truck distribution, holding, docking and air circulation plus a minimal area for warehouse and building storage space.
 - Level 1 provides car parking, warehouse, rail sidings, commercial and restaurant space.
 - Level 2 provides car parking, office, and cafeteria space.
 - Level 3 provides car parking, office and processing space with light truck access.
 - Level 4 provides roof parking for cars and light trucks and processing space with light truck access.
 - Levels 5 through 10 are processing space.
 - Level 11 is the mechanical equipment penthouse.
- b. Main entrance: A concrete canopy extending 30 feet from the building is provided. A vestibule leads into the main entrance lobby where a directory is furnished and access to the 4 passenger elevators and stair is provided. Adjacent is the entrance and lobby for the office structure, with 2 additional passenger elevators for office personnel and visitors.

PHYSICAL BUILDING REQUIREMENTS

The physical building requirements recognized the fact that the detailed requirements of each tenant would differ, and are unknown. Therefore, the building has to provide flexibility to enable the tenants to achieve their unique requirements. Following are the factors which have been considered:

- General Requirements:

- a. Adequate space for the uses: The amount of industrial space was determined for Prototype One based on the anticipated food industry market. From this, the amount of space required for the supporting functions such as material handling, truck maneuvering and docking, train docking, office and commercial space, and car parking was determined.
- b. Satisfactory relationship of the elements: The facility is designed so that all of the elements work well independently and together with adequate circulation to connect all of the related spaces.
 - (1) Vertical pedestrian core inter-connects processing, office, commercial, automobile and truck areas.
 - (2) Vertical material handling core inter-connects processing, truck and train areas.

- Specific Requirements:

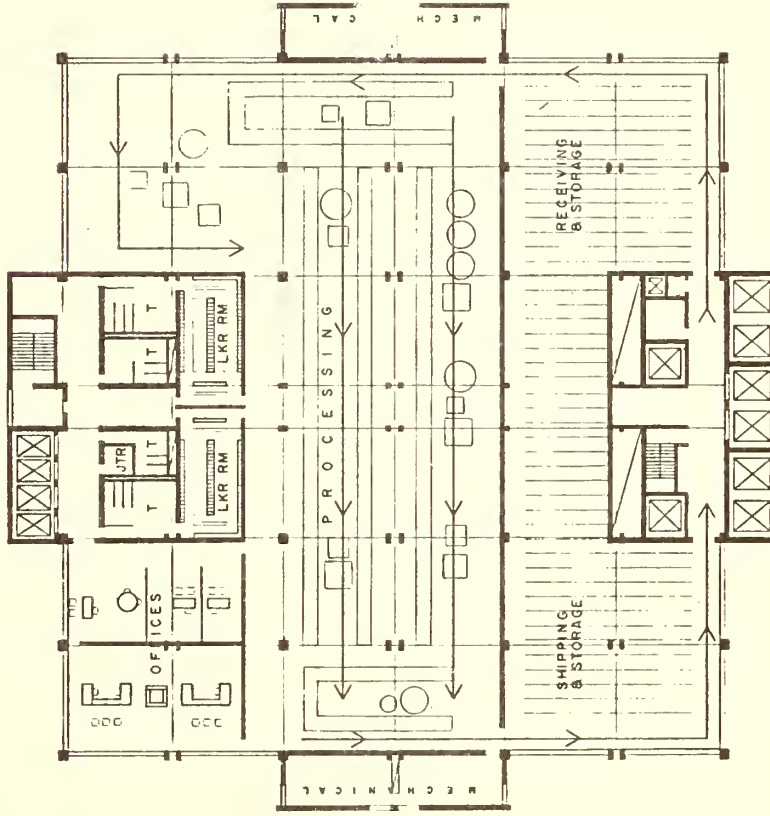
- a. Flexibility and universality: Within each functional area of the building, the space should be uniform and adequate in design so as to meet the needs of potential tenants or uses of the area.
 - (1) Adaptable to various sizes of tenants or uses:
 - (a) Each of the typical processing floors has a total rentable area of 30,000 square feet. A tenant can rent any amount of space from 1,000 sq. ft. up to one complete floor. The processing floors are most efficient with one tenant per floor, two one-half-floor tenants, or three one-third-floor tenants. (See Exhibits E5 through E8, this Appendix). When a floor is broken down more than this, it is necessary to provide a perimeter corridor.

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

TENANT PLAN



TYPICAL ONE TENANT LAYOUT



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T/A PROJECT NUMBER : 03-6-09056

100 SQUARE FEET
SCALE: MAY 29, 1966

EXHIBIT ES

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

TENANT PLAN

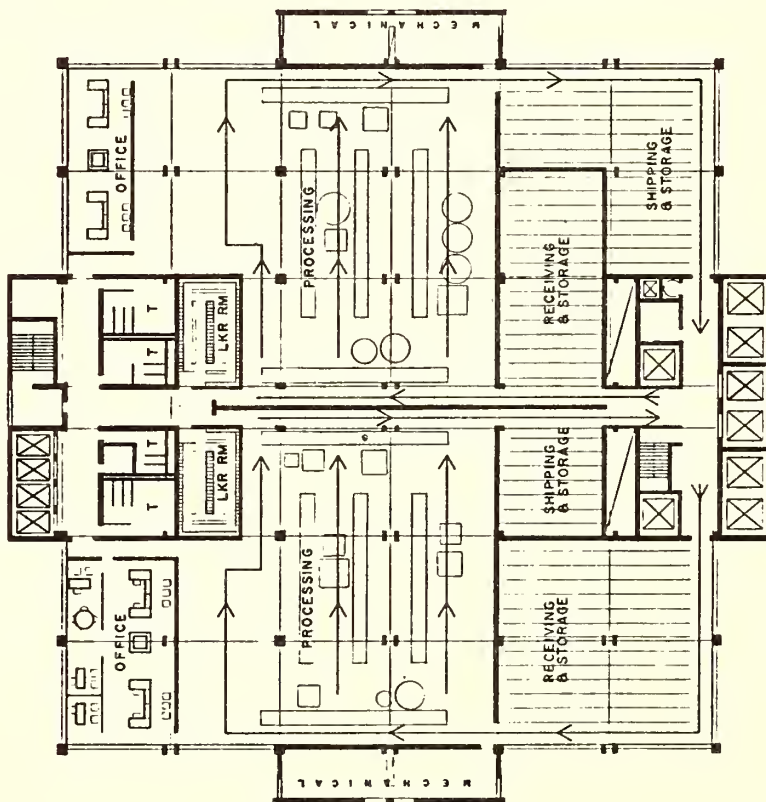


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T/A PROJECT NUMBER : 03-6-09056

100 REVISIONS 04/77
REV. MAY 22, 1968

EXHIBIT E6



TYPICAL TWO TENANT LAYOUT

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

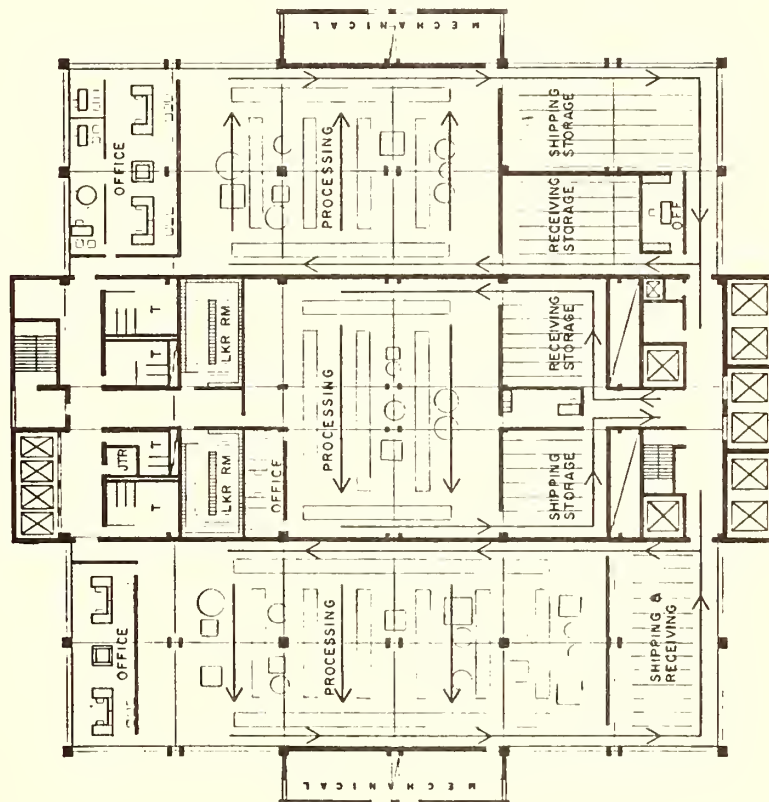
TENANT PLAN



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OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

100 SERIES, 44' 7"
DATE: MAY 20, 1968

EXHIBIT E7



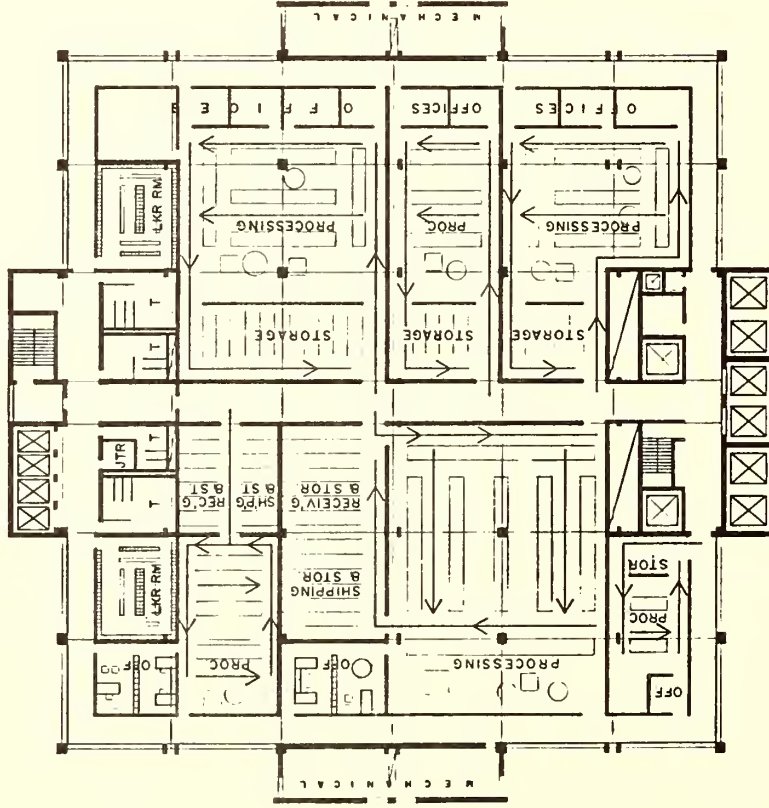
TYPICAL THREE TENANT LAYOUT

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

TENANT PLAN



TYPICAL MULTI TENANT LAYOUT



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T/A PROJECT NUMBER : 03-0-0Y056

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DATE: MAY 20, 1960

EXHIBIT EB

(b) Off-street parking:

Parking spaces are provided in a multi-level parking structure.

Level 1 is at Woodland Avenue Grade and there are three parking levels above. Levels 1 through 3 are open on the exterior wall to provide fresh air ventilation. Level 4 is roof parking. The garage is concrete construction and has a total capacity of 495 spaces. Each level of parking has direct access to the main building structure. (See Chapter 2, Exhibits E 14, E 15, E 16, and E17.)

(c) Truck facilities:

1. Distribution level: All trucks enter at sub-level 1 off the depressed road into designated traffic lanes. When dock space is available on sub-level 2, the truck drivers will be instructed to proceed down a ramp to a specific dock for loading or unloading. On this level there is holding space for 102 large trucks or more smaller ones. (See Chapter 2, Exhibit E 12).
 2. Docking Level: On sub-level 2, there are 54 docking spaces; each space will have built-in levelers. The dock is common to all trucks and is 33,880 sq. ft. In the center of the dock is material handling elevator core, from which all materials are distributed throughout the processing building above. There are seven additional truck docks on sub-level 1. (See Chapter 2, Exhibit E 13).
 3. On levels 3 and 4 of the processing building, there is the capability of having direct access for small vending trucks up to 3 tons gross weight. Trucks enter the building off the depressed street and travel up to and down from levels 3 and 4 by using the car ramps in the parking garage. Trucks can circulate through the processing space for loading. (See Chapter 2, Exhibit E 16 and E 17).
- (d) Commercial and office areas:
1. Common facilities needed by all tenants as part of their daily business

- a) Reception area in lobby.
 - b) Central switchboard.
 - c) Conference room.
 - d) Employee lunch room.
 - e) Medical facilities.
2. Support facilities which each tenant can utilize and which would be available to residents of the area. (See Chapter 2, Exhibit, E 14, E 15 and E 16).
- a) Offices for food brokers, meat inspectors, etc.
 - b) Duplicating services.
 - c) Drug store.
 - d) Bank.
 - e) Restaurant.
 - f) Cafeteria.
 - g) Mechanical equipment and truck repair shop.
- (e) Train facilities:
- On level 1, there are two enclosed rail sidings provided which will serve the entire facility. These two sidings have a capacity of 18 rail car spots. Adjacent to the rail sidings is a common docking and warehousing space. (See Chapter 2, Exhibit E 14).
- (2) Adequate floor loads: (See Exhibits E 9 and E 10, this Appendix)
- (a) Processing areas are uniformly designed for live loads of 200 lbs. per square foot to permit all types of equipment, to provide the ability to relocate equipment to adjust production flow, and to permit concentrated storage of materials.
 - (b) Truck maneuvering - 250 lbs./sq. ft.
 - (c) Truck and train docks - 200 lbs./sq. ft.
 - (d) Car parking - 75 lbs./sq. ft.
 - (e) Processing - 200 lbs./sq. ft.

- (f) Office and commercial - 100 lbs./sq.ft.
- (3) Adequate and uniform bay sizes: (See Exhibits E 9 and E 10, this Appendix)
- (a) In processing areas, a 30'-0" x 30'-0" bay was selected as one which will permit flexibility for all types of tenants. The bays are large enough that columns will not restrict production flow or material storage, but still economical for the heavy floor loads that may be required. The 30'-0" x 30'-0" bay is flexible for divisions into 2, 3, 5, 6 or 10 foot modules for partition locations within the tenant space.
 - (b) Office and commercial: 30'-0" x 30'-0" which is very flexible for office layout.
 - (c) Parking garage: 30'-0" x 30'-0" which is economical and efficient for 90% parking for which the facility was designed.
 - (d) Truck docking: A 30'-0" x 60'-0" bay which is necessary for maneuvering of large tractor trailer trucks into docks was used. Also, in some of the truck maneuvering areas, a 60'-0" x 60'-0" bay was required for a turning radius. The truck dock itself has a 30'-0" x 30'-0" bay which is adequate for maneuvering of fork lift trucks and stacking of pallets.

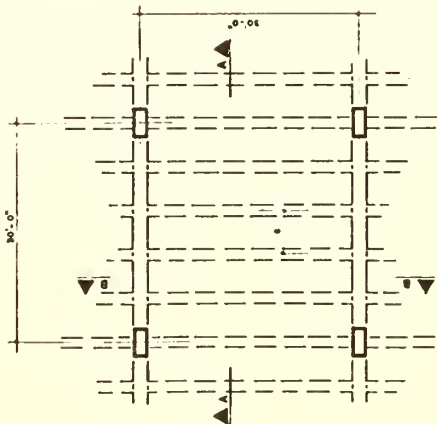
PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND FOR THE FOODS INDUSTRY PROTOTYPE ONE

STRUCTURAL: TYPICAL BAY & COLUMN

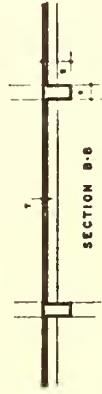


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EXHIBIT E9



30'-0" x 30'-0" BAYS



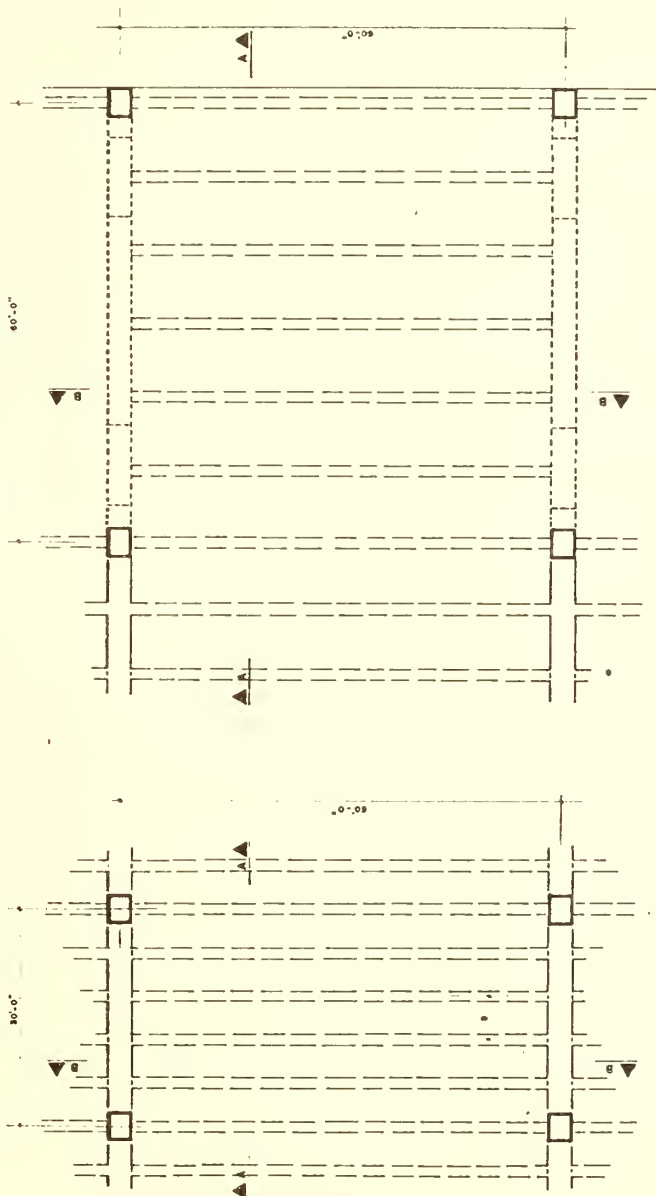
LOCATION	LIVE LOAD (PSI)	SLAB THICK (IN)	SEC'D SIZE (IN)	SPACING (IN)	ORIGES BETWEEN (IN)	BEING ST CONCRETE CUFT/SP	CONCRETE CUFT/SP
RESIDENTIAL	100	4 1/2"	6'10 1/2"	5'-0"	27'3 1/2"	388	0.87
COMMERCIAL	125	4 1/2"	6'10 1/2"	5'-0"	27'3 1/2"	388	0.88
INDUSTRIAL	150	5 1/2"	6'10 1/2"	5'-0"	27'3 1/2"	388	0.88
WAREHOUSING	250	8"	6'10 1/2"	5'-0"	27'3 1/2"	388	0.71
TOTAL							1.55

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

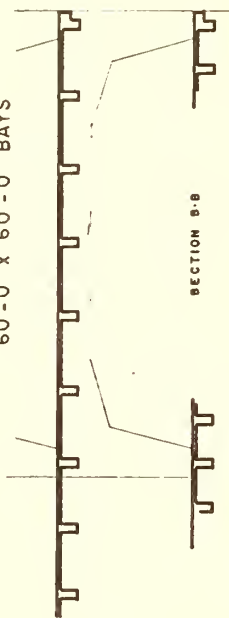
PROTOTYPE ONE

STRUCTURAL:
TYPICAL BAYS

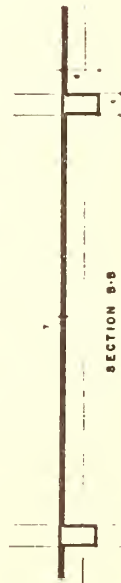


30'-0" x 60'-0" BAYS

60'-0" x 60'-0" BAYS



SECTION A-A



SECTION B-B

LOCATION	LIVE LOAD PSF	SLAB THICK (T)	SPACING (S)	GIRDER SIZE (G)	REIN ST #/5' F	CONCRETE CU/YD
WAREHOUSE	100	4 1/2"	2'-0"	42"x42"	9.37	0.81
WAREHOUSE	200	4 1/2"	2'-0"	42"x42"	9.37	1.14
TRUCKING	200	6"	2'-0"	42"x42"	13.76	1.83

LOCATION	LIVE LOAD PSF	SLAB THICK (T)	SPACING (S)	GIRDER SIZE (G)	REIN ST #/5' F	CONCRETE CU/YD
WAREHOUSE	200	8"	10'-0"	48"x48"	15.38	2.04
TRUCKING	200	8"	10'-0"	48"x48"	16.47	2.14

SECTION C-C



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EXHIBIT E10

(4) Adequate and uniform ceiling heights:

In all of the processing areas, the ceiling height is 12'-0" to facilitate the stacking of materials two pallets high, placement of large equipment, and installation of overhead conveyor or chain hoists as may be needed for the meat industry.

- (a) Sub-levels: 14'-6" minimum clearance - adequate clearance for large tractor trailer trucks.
- (b) Offices and commercial: 9'-0" - adequate height for pleasing work space.
- (c) Parking garage: 8'-0" minimum clearance - adequate clearance for small vending trucks.
- (d) Penthouse: 15'-0 - adequate clearance for large equipment.
- (e) Typical processing floors' elevator lobby, toilet rooms and corridors: 9'-0".

(5) Floor to floor heights:

- (a) Sub-levels 1 and 2: 21'-0"
- (b) Office and commercial: 12'-0"
- (c) Parking garage: 12'-0"
- (d) Processing levels: 16'-0"
- (e) Penthouse level: 17'-0"

(6) Suitable materials and finishes:

- (a) The entire building would be constructed of poured in place reinforced concrete because of the heavy floor loads, need for a fireproof structure, to minimize vibration transmission, and minimize noise and odor transmission.
- (b) Generally shell space is provided in each area so that each tenant will be able to provide the finishes which are most suitable to his needs.

1. Public spaces (lobbies)
 - a) Floor -terazzo
 - b) Base - terazzo
 - c) Walls - concrete, masonry (brick or structural facing tile)
 - d) Ceiling - lay-in-grid, mineral fiber panels
 2. Toilet rooms
 - a) Floor - ceramic tile
 - b) Base - ceramic tile
 - c) Walls - ceramic tile
 - d) Ceiling - lay-in-grid, mineral fiber panels
 3. Parking garage
 - a) Floor - concrete with hardener
 - b) Walls and columns - exposed concrete
 - c) Painted and electrified traffic control
 4. Processing space
 - a) Floor - exposed concrete
 - b) Walls - concrete block wall in core areas only
 - c) Ceiling - exposed concrete
 5. Office and commercial space
 - a) Floor - exposed concrete
 - b) Ceiling - exposed concrete
- (c) Doors, door and window frames, and glass:
1. Main lobby entrance and exterior commercial window walls.
 - a) Entrance doors - aluminum frames with duranodic finish
 - b) Exterior door and window frames - aluminum with duranodic finish
 - c) Glass - clear plate

2. Processing, truck, mechanical and garage levels: (On the processing floors, the only doors and door frames provided are in the core areas).
 - a) Doors - hollow metal with enamel finish
 - b) Door frames - hollow metal with enamel finish
- (d) Exterior walls:
 1. Office and commercial area: Poured in place concrete frame with duranodic aluminum framed window wall.
 2. Parking garage area: Concrete frame with masonry spandrel.
 3. Processing levels: Poured in place concrete frame and masonry wall panels with duranodic aluminum sash or insulated wall panels.
 4. Penthouse level: Masonry walls with aluminum louvers.
- (7) Adequate toilet room facilities:

Separate men and women executive and employee toilet rooms are provided on each processing level. These toilet facilities provide only the basic building code requirements. Employees' toilets are so laid out that a tenant, at his own expense, may add locker and shower rooms, if required.
- (8) Passenger elevators:

The processing tower is served by four automatic elevators which stop at each floor. Two of these also stop at sub-levels 1 and 2.

 - (a) Cab capacity - 4000 lbs.
 - (b) Door size - 3'6" x 7'0"
 - (c) Travel speed - 350 feet per minute

The office structure is served by two automatic elevators which stop at each floor.

 - (a) Cab capacity - 2500 lbs.
 - (b) Door size - 3'6" x 7'0"
 - (c) Travel speed, 200 feet per minute

- (9) Adequate and flexible material handling system to meet all types of potential tenant needs:

(a) Material handling management facilities:

All of the material handling for the entire building would be controlled and operated by a building management service. This means that the management service would be in charge of scheduling all trucks to and from the truck docks, loading and unloading all trucks, scheduling all train cars to be spotted, loading of all train cars, and delivery of all materials to and shipment of all materials from the individual tenant floors. In addition to coordinating all of the shipping and receiving, this management service would also eliminate the potential of individual tenant disputes over who should use the elevator, truck docks, or train dock.

(b) Material handling elevators:

1. Eight elevators each serve one processing floor plus Level 1 and the two sub-levels.
2. One elevator serves all processing floors for emergency or overload, plus level one and the two sub-levels.
3. General material handling elevator specifications
 - a) Rear entrance for loading and unloading on sub-level 2 in six elevators
 - b) Platform size - 8'6" x 10'0" x 10'0" high
 - c) Capacity - 10,000 lbs.
 - d) Doors - 8'0" x 9'6"
 - e) Travel speeds:

- 3 to 5 levels	200 f.p.m.
- 6 to 8 levels	300 f.p.m.
- 9 or more levels	350 f.p.m.

- (c) Special material handling equipment:
Space is provided in the mechanical shaft adjacent the material handling elevators for any tenant's special material handling system he may wish to install at his own expense.
- (10) Use of a "grid" or similar system for flexibility and ease in locating mechanical and electrical systems. The building is designed with a split beam and column system in alternate bays running in an east-west or transverse direction of the building. In the north-south or longitudinal direction, the central bay of the processing tower is smaller than the others. Therefore, the depth of structure in this bay is less, providing space for overhead utility runs.
- (11) Central mechanical and electrical system with adequate supply lines for all required utilities which could be extended to the individual tenant spaces as required. (See Exhibits E 11 and E 12, this Appendix) All of the tenant service installations must be approved by the building owner. Following are the utilities and services which are designed into the building:
 - (a) Plumbing
 - 1. Water: Hot and cold water service is supplied to all public toilet rooms and janitor spaces. For tenant use, there are cold water lines available at three locations on each floor. If a tenant requires water, he would provide a valve the same size as his intended service line. This valve should be located at the tee just beyond the main shut-off valve in the shaft, so his water could be turned off without interference to other tenants. The tenant would also provide a water meter, and then he would be free to run a line as necessary to and within his space. All of this would be included in the tenant improvements. Where possible, lines should run within the utility space provided on the ceiling in the narrow central (longitudinal) bay and in the 'split beams' that run in a transverse direction.
 - 2. Hot water: If a tenant requires hot water beyond the toilet room service provided by the building, he would provide an electric or gas hot water heater in his space and connect this to his own water supply.

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

MECHANICAL & ELECTRICAL SERVICE DIAGRAM

- BASE BUILDING
- TENANT IMPROVEMENTS
- PP FIRE PROTECTION
- WS WET STANDPIPE
- FHC FIRE HOSE CABINET
- S SANITARY
- ST STORM
- G GAS
- CDS CONDENSING WATER SUPPLY
- COR CONDENSING WATER RETURN
- SS STEAM SUPPLY
- SR STEAM RETURN
- H HOT WATER
- C COLD WATER
- EW EDIBLE INDUSTRIAL WASTE
- W INDUSTRIAL WASTE
- E ELECTRICAL
- T TELEPHONE
- PE PROCESS EXHAUST
- I INCINERATOR

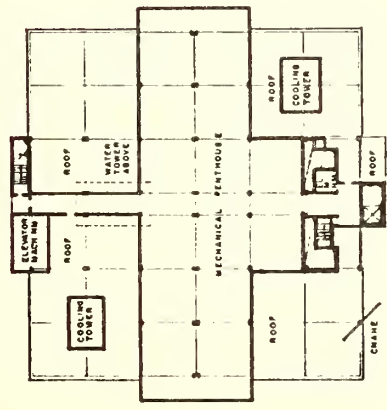


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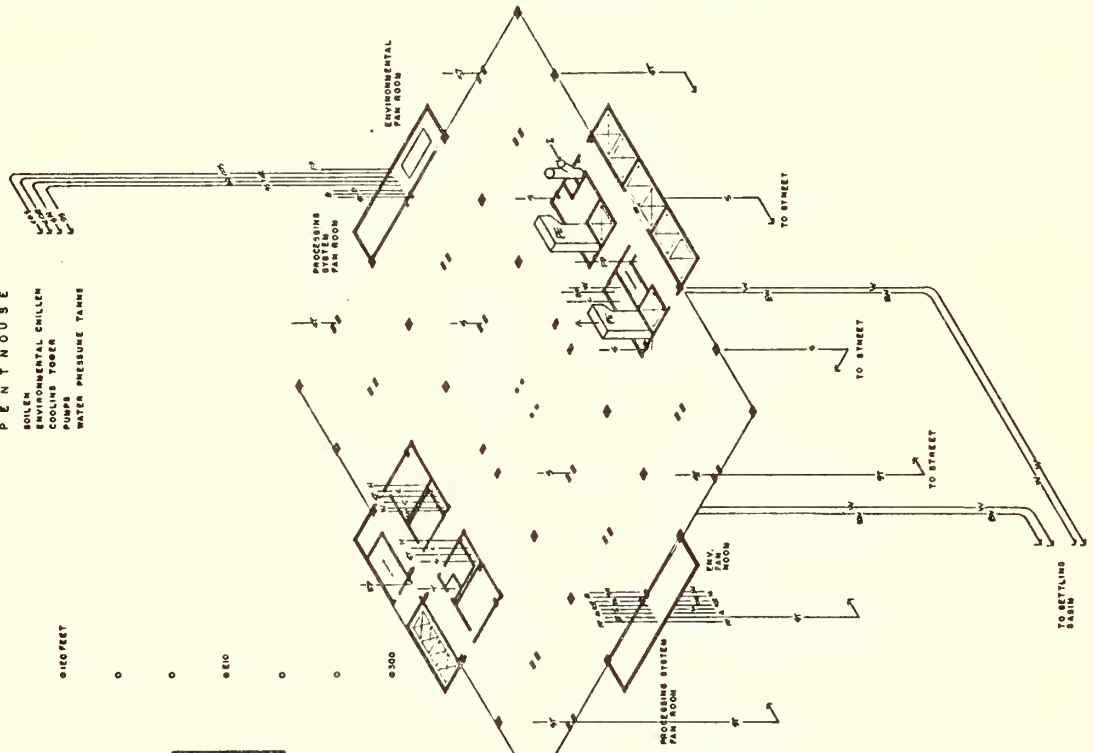
JOB NUMBER 44-77
DATE 11-1-66
EXHIBIT E11

PENTHOUSE
BOILER
ENVIRONMENTAL CHILLER
COOLING TOWER
PUMPS
WATER PRESSURE TANKS

0 150 FEET
0 300 FEET
0 450 FEET
0 600 FEET
0 750 FEET
0 900 FEET



PENTHOUSE PLAN
LEVEL II



MECHANICAL & ELECTRICAL SERVICE
DIAGRAM

PROTOTYPE MULTI - LEVEL INDUSTRIAL BUILDING IN CLEVELAND

FOR THE FOODS INDUSTRY

PROTOTYPE ONE

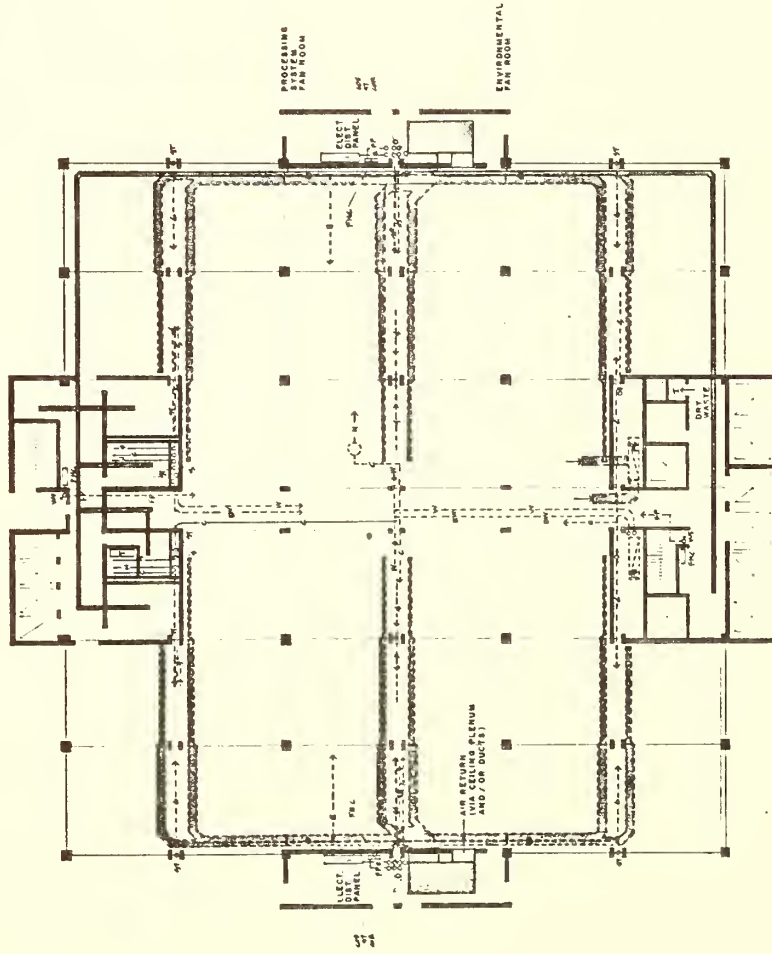
SERVICES

- AIR SUPPLY - BASE BUILDING
- AIR SUPPLY - TENANT IMPROVEMENTS
- BASE BUILDING
- TENANT IMPROVEMENTS
- FP FIRE PROTECTION
- WS WET STANDPIPE
- FHC FIRE HOSE CABINET
- S SANITARY
- ST STORM
- O GAS
- COS CONDENSING WATER SUPPLY
- COR CONDENSING WATER RETURN
- SS STEAM SUPPLY
- SR STEAM RETURN
- H HOT WATER
- C COLD WATER
- EW EDDIBLE INDUSTRIAL WASTE
- W INDUSTRIAL WASTE
- E ELECTRICAL
- T TELEPHONE
- PE PROCESS EXHAUST
- I INCINERATOR



PREPARED FOR THE CITY OF CLEVELAND UNDER
A TECHNICAL ASSISTANCE GRANT FROM THE
ECONOMIC DEVELOPMENT ADMINISTRATION
OF THE U.S. DEPARTMENT OF COMMERCE
T/A PROJECT NUMBER : 03-6-09056

100 BARRETS 44 1/2
BILLS, WITH 2-1/2 IN.
EXHIBIT E12



MECHANICAL & ELECTRICAL SERVICE PLAN

3. Steam: Steam is available from the mechanical penthouse for process requirements. There are two steam supply locations on each floor. If this source is used, it should be tapped with a line, a valve, and a meter which would be installed at tenant expense similar to the cold water tap.
 4. Sanitary waste: Public toilet facilities (including lavatories) are provided on each floor. In addition, sanitary soil stacks and vents are available at six locations on each floor. The tenant may install a 'y' in these stacks to serve his fixtures.
 5. Storm water: Storm water stacks are provided at eight locations on each floor. The tenant may install a 'y' in these stacks to serve any floor drains he may wish to install.
- (b) Industrial waste:
1. Fluid waste:
 - a) Two industrial waste risers are available on each floor. The tenant may run a line as necessary to and within his space and connect this line to the waste riser nearest to his location. Where possible, lines should run within the utility space provided on the ceiling in the narrow central (longitudinal) bay and in the 'split beams' that run in a transverse direction.
 - b) Edible and unedible wastes are collected through separate risers. Unedible wastes are carried, water-borne, down pipes and shafts to settling and/or grease basins at the lower level. Edible wastes are similarly carried to a separate basin. The building owner is responsible for removal and cleaning of both basins.
 2. Dry waste: Dry waste is collected at each floor through a shaft provided for that purpose. Incineration of both edible and unedible garbage and dry waste is provided through this system.

(c) Gas service: Gas service is provided at two locations on each floor. If a tenant requires gas, he should provide a valve the same size as his intended service line. This valve should be located at the tee just beyond the main shut-off valve in the shaft, so the tenant's gas can be turned off without interference to the other tenants. The tenant would also provide a gas meter, and then he may run a line as necessary to and within his space. All of this would be included in the tenant improvements. Where possible, lines should run along the east or west exterior walls at the ceiling and in the 'split beams' that run in a transverse direction.

(d) Fire protection: The building is provided with standpipes in each stairwell and with hose cabinets on each floor. Additional hose cabinets made necessary by the tenants layout, and sprinklering of tenant spaces shall be installed from tees provided in the standpipes. The installation of these additional items would be at the tenant's expense.

Break-glass alarm stations are provided on each floor, with an alarm panel located in the building maintenance office and warning bells installed throughout the building.

The garage and truck areas are provided with a dry-type sprinkler system. An alarm system of warning horns serves these areas.

(e) Heating, ventilating and air conditioning:

1. Fan rooms: Two fan rooms are located on each floor. One half of each space is utilized for the basic environmental equipment (air handling and fan coil devices). The other half is reserved for additional processing systems that may be required by the tenant. Steam coils (for heating) and chiller coils (for cooling and de-humidification) are provided to each fan room for basic environmental heating and cooling only. (These systems originate with boiler and chiller equipment located in the roof-penthouse area.)

2. Air distribution: From the fan room air is distributed through a supply duct system to the core areas. The tenant is responsible for installing his own ducting and variable volume air diffusers, meeting the building engineering standards, to his space. Where a finished ceiling is installed by tenant, air is returned through openings in the ceiling, making the entire space from the drop ceiling to the bottom of the structure on each floor a return air plenum. Should additional returns or sound baffling be required, the tenant must provide this. If walls are carried to the underside of the structure for sound isolation, openings with appropriate sound attenuation should be installed by the tenant so that air will flow in a normal return path to the fan room. Where no drop ceiling is installed, the tenant must install return air ducts within his spaces to tie into the air return opening at the fan room, or into the adjacent tenant's plenum.
3. Thermostats: Tenant should provide thermostats to respond to variations in space temperature and solar effects. Basic environmental objectives for all floors (independent of process requirements) are 70° F., 30% R.H. in winter; 80° F., 50% R.H. in summer; additional environmental capacity due to special heat-producing processes (including special ventilation requirements) would be provided by the tenant. Special refrigeration needs are also provided by the tenant.
4. Ventilation: Ventilation is provided through the fan rooms (both intake and relief). When outside temperature is low enough to be useful for cooling, outside air will be introduced above the minimum ventilation requirements.
5. Exhaust: All public toilet rooms and janitor spaces are exhausted by separate fans and ducts provided by the owner as a part of the basic building.

Process exhaust from tenant spaces must be provided by the tenant. Such exhaust can be ducted to one of the two utility shafts provided for this purpose and thence vertically to the penthouse. Fans must be provided by the tenant.

(f) Electricity and communications:

1. Electric power: Electric service is available at two locations on each floor. The tenant is responsible for metering, switching, and fusing beyond the panel board, and for the installations of all power receptacles. Where possible, conduit lines should run along the east or west exterior walls at the ceiling and in the 'split beams' that run in a transverse direction.
2. Emergency circuits: Emergency circuits are provided in the corridors, stairs and material handling areas as required by code.
3. Lighting: General lighting is provided in the public circulation core, in the material handling areas, in the truck circulation and docking areas, and the parking garage by the owner. The tenant is responsible for installing all lighting within his space. All lighting fixtures must conform with the building engineering standards.
4. Telephone: A telephone terminal cabinet is available on each floor. Requirements beyond this point are provided at tenant expense.

b. Expandability:

- (1) Modular structural, mechanical and electrical systems are designed to permit easy expansion of tenant spaces.
- (2) A flexible leasing system using a combination of long and short term leases would facilitate expansion of individual tenants.

c. Economy:

- (1) The tenant space is flexible in design and universally adaptable to any food industry tenant. Thus, it has wide appeal for initial rental purposes; tenants can expand their facilities within the building; and, if a tenant moves out, the space will not become obsolete. (See Chapter 2, Exhibits E 18)

- (2) The building is designed with a minimal amount of construction in the tenant spaces to allow the tenants to provide their spaces with the necessary requirements of their businesses. This eliminates the possibility of having spaces overdesigned for a tenant's needs.
- (3) The building is designed to achieve maximum efficiency of the rentable space. This is accomplished by the following:
 - (a) Separation of the pedestrian areas from the material handling areas.
 - (b) Efficient subdivision of the floors by providing a minimal amount of corridors and public spaces.

d. Safety:

This was considered by designing the following features into the facility:

- (1) Pedestrian areas are separate from material handling areas.
- (2) Office areas are easily accessible to visitors.
- (3) The building has a central security service.

e. Common facilities and support facilities:

The support and common facilities are designed into the building in order to economically solve some of the potential tenant's functional space requirements and provide facilities which would be beneficial to the processing tenants at a lower unit cost.

APPENDIX 3

PROTOTYPE BUILDING ONE

PRELIMINARY CONCLUSIONS AND PROGRAM REVISION

I

SECTION A - FINANCIAL ANALYSIS

SECTION B - DEVELOPMENT CONSIDERATIONS

SECTION C - MARKET SURVEY

In developing this analysis, the project was treated as though it would be developed privately. The figures and assumptions used were based on the then current financing conditions, current industrial development practices and general market conditions. The following procedure was used:

- The project cost (i.e. costs to be incurred prior to and during the construction stage) were developed
 - a. Land Cost: This is based on the price the city renewal agency would have asked for this land from a private developer, based on the re-appraisal value. Source was the City of Cleveland Community Development Department.
 - b. Building Construction Cost: Tenant fact sheets were submitted to Turner Construction Company. These contained information as to building construction and defined the base building as well as tenant improvements. Turner then projected a unit cost estimate of construction. The figures are based on estimated construction costs for late 1969 or 1970 insofar as these could be projected. These construction costs were then submitted to Ernst and Ernst for compilation of the pro forma financial analysis.
 - c. Architects, engineers, other fees: This is based on accepted fee schedules in the profession.
 - d. Interest, insurance, other construction costs: This is based on discussion with bankers, insurance company representatives, etc., as to the prevailing rates and costs which might be incurred.
 - e. Management, Administration: This refers to the owner's or developer's costs and is estimated at about 2% of construction cost.
 - f. Contingency: This covers the possibility of unforeseen problems, delays, etc., in construction.
- This total project cost then determined the scope of the financial needs. From this an analysis was made of various financing alternatives (see Chapter 1 and Chapter 2). Exhibits E2, E3, E4 and E5 in this Appendix illustrate the differences between a commercial bank-mortgage loan at the 7 1/4% interest rate which was then available and the E.D.A. loan financing package. The E.D.A. package was determined to be the most favorable because of its lower interest rate and the smaller proportion of private equity which would be needed.
- Annual disbursements were projected for each building segment by major category.
 - a. Mortgage interest and principal payments were assumed to be level annual payments on the combined E.D.A. and commercial bank package at a composite 5 3/4% rate for 25 years.

- b. Real estate taxes were computed at the 1968 Cleveland rate of \$5.51 per \$100 at 40% valuation.
- c. Insurance estimates for casualty and liability coverage were based on commercial insurance underwriters' estimates of coverage requirements, considering building location and configurations.
- d. Building operating and maintenance costs were projected from statistics on Cleveland office building published by the National Association of Building Owners and Managers (NABOM). Although NABOM data is for office buildings, certain elements of cost were considered appropriate for the buildings in this study because of the similarity of services provided to tenants. However, because most of the space in Prototype One is for industrial purposes, the operating costs were reduced or eliminated where they did not apply to individual building segments. The NABOM operating costs include cleaning, basic utilities, air conditioning and ventilation, plumbing, elevators, maintenance and upkeep, and general office expense. The operating and maintenance cost per square foot of constructed space for Prototype One were projected as:

Truck holding, maneuvering, docking areas \$.475 p.s.f.

Rentable space \$.753 p.s.f.

The operating and maintenance cost for the car parking areas were based on estimates of costs per parking space derived from studies of other car parking operations. Thus an operating and maintenance cost of \$120 per car space per year was used.

Management fees were projected on the basis of discussions with developers and operators of buildings and parking lots. Generally, 4% to 5% of gross rentals is considered a reasonable management fee. A 4% rate was applied to the total gross break-even rental and the total management fee was allocated to the individual building segments according to the estimated relative management time and effort required for each segment and the minimum fees which individual managers would require for each segment.

- The rental figure is based on the net rentable square feet of space, which amounts to about 35% of the total constructed square feet. Net rentable space does not include truck or car parking areas, public circulation, elevators. However, the tenant does pay for the cost of including these services in the building. Therefore, a figure is also shown which reflects the amount that each major building segment contributes to the total rent.

- The depreciation schedule shows the tax shelters which might be available to a developer during the early years of ownership.

EXHIBIT 1

PRO FORMA SUMMARY OF CAPITAL AND OPERATING COSTS
 EDA FINANCING PACKAGE ONLY

		Total Project Costs	Annual Cash Requirements For Mortgage Payments and Operations	Construction Costs Per Square Foot	Total Project Costs Per Constructed Sq. Ft.	Total Project Costs Per Sq. Ft. of Rentable Space: Levels #1-#11	Annual Cash Requirements Per Sq. Ft. of Rentable Space: Levels #1-#11
Land	\$ 370,000	\$ -	\$ -	\$ NA	\$ 2.00 ³	\$ 1.01	\$ -
Off-Site Improvements	784,300 ⁵	-	-	-	-	-	-
Sub-levels #1 and #2	4,390,290	640,450	11.05	13.01	11.94	1.74	1.74
Parking Levels #1-#4	2,652,260	326,500	9.51	11.14	7.21	.89	.89
Levels #1-#11 (Ex. Parking)	18,252,450	2,110,800	30.20	35.49	49.63	5.74	5.74
TOTALS	\$26,449,300 ⁵	\$3,077,750	\$19.76	\$24.27	\$71.92	\$8.37 ⁴	

NOTES: 1. Rentable space applies only to actual rentable space (i.e. industrial, office, commercial) in levels #1-#11, excluding parking:
 Levels #1-#3 156,670 sq. ft.
 Levels #4-#11 211,080 sq. ft.
 Total 367,750 sq. ft.

2. Financing and property tax cash flow for land is already included with calculations for sublevels #1 and #2.

3. Land costs based upon 185,000 sq. ft. at \$2.00/sq. ft.; these estimates have subsequently been lowered to \$1.00/sq. ft. This difference will not materially change the financial estimates.

4. This represents the break-even rental rate per square foot at 100% occupancy. At 95% occupancy, the rented space in levels #1-#11 reduces to 349,360 sq. ft., and the annual cash requirements per square foot are:

Sub-levels #1 and #2	\$1.83
Parking levels #1-#4	.94
Levels #1-#11 (Ex. Parking)	6.04
Total	\$8.81

5. Although off-site improvements (excavation, sheeting, bridges, retaining walls, paving) are expected to be provided by the municipality, they are an element of project costs and are therefore included. Since this expense is not expected to be recovered from the tenants, the amount is shown only in project costs and is not included in the break-even cash flow analysis.

EXHIBIT 2
 PROTOTYPE BUILDING ONE
 PRO FORMA CASH FLOW ANALYSIS

	Sub Levels #1 and #2	Levels #1-#4 (Car Parking)	Levels #1-#11 (Excluding Car Parking)	Totals
Project Cost	\$4,760,290	\$2,652,260	\$18,252,450	\$25,665,000
Square feet of construction	337,550	238,000	514,352	1,089,902
Project cost per square foot	14.11	11.14	35.49	23.55
<u>Financing and Equity Alternatives</u>				
• Conventional Bank Mortgage				
- 7 1/4%, 20 years, 75%	3,570,200	1,990,000	13,700,000	19,260,200
- Equity required, 25%	1,190,090	662,260	4,552,450	6,404,800
• EDA Financing Package - 5 3/4%, 25 years				
- EDA Mortgage, 65%	3,094,200	1,725,000	11,872,550	16,691,750
- Commercial bank mortgage, 25%	1,190,090	662,260	4,552,450	6,404,800
Subtotal, 90%	4,284,290	2,387,260	16,425,000	23,096,550
- Equity required, 10%	476,000	265,000	1,827,450	2,568,450
<u>Annual Cash Disbursements</u>				
<u>Based on EDA Package</u>				
Mortgage Interest and Principal	\$ 323,450	\$ 180,000	\$ 1,240,000	\$ 1,743,450
Taxes - \$5.51/\$100 @ 40%	105,000	58,500	402,300	565,800
Insurance	2,000	3,000	23,500	28,500
Operating and Maintenance	160,000	60,000	395,000	615,000
Management	50,000	25,000	50,000	125,000
Total Cash Disbursements	\$ 640,450	\$ 326,500	\$ 2,110,800	\$ 3,077,750
<u>Gross Annual Rentals Required to</u>				
<u>Cover Cash Outflow¹</u>	<u>\$ 640,450</u>	<u>\$ 326,500</u>	<u>\$ 2,110,800</u>	<u>\$ 3,077,750</u>

Notes:

Annual rentals show only a break-even point, with no allowance for cash flow return on investor's equity. This is realistic in these projections because per square foot rentals required for just a break-even are far in excess of competitive rates.

EXHIBIT 3
 PROTOTYPE BUILDING ONE
 SUBLEVELS #1 AND #2
 PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Land Cost - 185,000 sq. ft. @ \$2.00	\$ 370,000
Building Cost - 337,550 sq. ft. @\$11.05	3,731,290
Architects, Engineers, other fees-- 8% of building cost	298,000
Interest, insurance, other construction costs - 4% of building cost	149,000
Management Administration	100,000
Contingency - 3% of building costs	112,000
TOTAL PROJECT COST	<u>\$4,760,290</u>

Financing and
Equity Alternatives

Conventional
Bank Mortgage

EDA
Package

1. Commercial Bank - 7-1/4% 75% 20 years	\$3,570,200	
Equity required 25%	1,190,090	
2. EDA Package - 5-3/4%, 25 years		
EDA Portion 65%		\$3,094,200
Commercial Bank Portion 25%		1,190,090
Sub-Total 90%		\$4,284,290
Equity Required 10%		\$ 476,000

Annual Disbursements

EDA
Financing

Mortgage interest and principal	\$ 338,650	\$ 323,450
Taxes - \$5.51/\$100.00 @ 40%	105,000	105,000
Insurance	2,000	2,000
Operating and maintenance	160,000	160,000
Management	50,000	50,000
Total Disbursements	<u>\$ 655,650</u>	<u>\$ 640,450</u> ¹

¹ This annual cost will add \$1.74/sq. foot to rental rates for levels #1-#11

EXHIBIT 4
THIRTEEN LEVEL
PROTOTYPE BUILDING ONE
LEVELS #1-#4 (CAR PARKING)
PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Land-air rights, lease, etc.	-0-
Building cost-238,000 sq. feet @ \$9.51	\$2,262,260
Architects, Engineers, other fees - 8% of building cost	180,000
Interest, insurance, other construction costs - 4% of building cost	90,000
Management, administration	50,000
Contingency - 3% of building cost	70,000
TOTAL PROJECT COST	<u>\$2,652,260</u> ¹

<u>Financing and Equity Alternatives</u>	<u>Conventional Bank Mortgage</u>	<u>EDA Package</u>
1. Commercial Bank - 7-1/4%		
20 years 75%	\$1,990,000	
Equity Required 25%	662,260	
2. EDA Package - 5 3/4%, 25 years		
EDA Portion 65%		\$1,725,000
Commercial bank portion 25%		<u>662,260</u>
Sub Total 90%		\$2,387,260
Equity Required 10%		265,000

Annual Disbursements

Mortgage interest and principal	\$ 189,000	\$ 180,000
Taxes - \$5.51/\$100.00 @ 40%	58,500	58,500
Insurance	3,000	3,000
Operating, maintenance	60,000	60,000
Management	25,000	25,000
Total Disbursements	<u>\$ 335,500</u>	<u>\$ 326,500</u> ^{2,3}

1 Average project cost per car space = \$5,360 (\$2,652,260 ÷ 495)

2 \$326,500 ÷ 495 cars = \$660/car space/year = \$55/month or \$2.50/week day

3 This annual cost will add \$.39/sq. foot to rental rates for Levels #1-#11

EXHIBIT 5
THIRTEEN LEVEL
PROTOTYPE BUILDING ONE
LEVELS #1-#11 (EXCLUDING PARKING)
PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Land-air rights, lease, etc.	-0-
Building cost - 514, 352 square feet @ \$30.20	\$15,527,450
Architects, Engineers, other fees - 8% of building cost	1,250,000
Interest, insurance, other construction costs - 4% of building costs	625,000
Management and administration	200,000
Broker fees (start up cost)	150,000
Contingency - 3% of building cost	500,000
TOTAL PROJECT COST	\$18,252,450

<u>Financing and Equity Alternatives</u>	<u>Conventional Bank Mortgage</u>	<u>EDA Package</u>
1. Commercial bank 7-1/4% 20 years 75% Equity required 25%	\$13,700,000 4,552,450	
2. EDA package 5-3/4%, 25 years EDA portion 65% Commercial Bank Portion 25%		\$11,872,550 4,552,450
SUBTOTAL 90%		\$16,425,000
Equity Required 10%		1,827,450

Annual Disbursements

Mortgage interest and principal	\$ 1,300,000	\$ 1,240,000
Taxes - \$5.51/\$100.00 @ 40%	402,300	402,300
Insurance	23,500	23,500
Operating and maintenance	395,000	395,000
Management	50,000	50,000
TOTAL DISBURSEMENTS	\$ 2,170,800	\$ 2,110,800¹

¹ Building rentals for levels #1 - #11 will have to average \$5.74/square foot per year to cover costs and mortgage payments, plus \$1.74/square foot for sublevels #1 and #2 and \$.89/square foot for Parking Levels #1 - #4.

EXHIBIT 6
 PROTOTYPE BUILDING ONE
 PRO FORMA PROFIT AND LOSS ANALYSIS
 EDA FINANCING PACKAGE ONLY

	Sublevels # 1 and # 2	Levels # 1 - # 4 (Car Parking)	Levels # 1 - # 11 (Excluding Car Parking)	Total
GROSS ANNUAL RENTALS TO COVER CASH DISBURSEMENTS	\$640,450	\$326,500	\$2,110,800	\$3,077,750
OPERATING EXPENSES				
Taxes	105,000	58,500	402,300	565,800
Insurance	2,000	3,000	23,500	28,500
Operating and Maintenance	160,000	60,000	395,000	615,000
Management	50,000	25,000	50,000	125,000
TOTAL OPERATING EXPENSES	\$317,000	\$146,500	\$ 870,800	\$1,334,300
OPERATING INCOME	\$323,450	\$180,000	\$1,240,000	\$1,743,450
OTHER EXPENSES				
Interest-Average of First Five Years @ 5 3/4%, 25 Years ¹	234,350	130,400	898,500	1,263,250
Depreciation-Double Declining, 45 Year Life, Average of First Five Years ²	178,550	107,860	742,240	1,028,650
TOTAL OTHER EXPENSES	\$412,900	\$238,260	\$1,640,740	\$2,291,900
NET INCOME (LOSS) BEFORE TAXES	<u>(\$ 89,450)</u>	<u>(\$ 58,260)</u>	<u>(\$ 400,740)</u>	<u>(\$ 548,450)</u>
ADD: Average Depreciation First Five Years	178,550	107,860	742,240	1,028,650
DEDUCT: Average Principal Payment, First Five Years	<u>89,100</u>	<u>49,600</u>	<u>341,500</u>	<u>480,200</u>
NET ANNUAL CASH FLOW	<u>\$ - 0 -</u>	<u>\$ - 0 -</u>	<u>\$ - 0 -</u>	<u>\$ - 0 -</u>

See next page for explanation of notes ¹ and ²

NOTE 1

ACTUAL INTEREST
AND PRINCIPAL

	Sublevels # 1 and # 2	Levels # 1-# 4 (Car Parking)	Levels # 1-# 11 (Excluding Car Parking)	Total
Year 1: Interest	\$244,300	\$135,900	\$936,550	\$1,316,750
Year 1: Principal	79,150	44,100	303,450	426,700
Year 2: Interest	239,620	133,300	918,630	1,291,550
Year 2: Principal	83,830	46,700	321,370	451,900
Year 3: Interest	234,680	130,540	899,660	1,264,880
Year 3: Principal	88,770	49,460	340,340	478,570
Year 4: Interest	229,430	127,620	879,570	1,236,620
Year 4: Principal	94,020	52,380	360,430	506,830
Year 5: Interest	223,880	124,530	858,290	1,206,700
Year 5: Principal	99,570	55,470	381,710	536,750

NOTE 2

ACTUAL DEPRECIATION

Year 1	\$195,120	\$117,900	\$811,210	\$1,124,230
Year 2	186,450	112,650	755,150	1,074,250
Year 3	178,160	107,630	740,700	1,026,490
Year 4	170,250	102,850	707,800	980,900
Year 5	162,700	98,275	676,330	937,305

EXHIBIT 7
 PROTOTYPE BUILDING ONE
 CALCULATION OF AVERAGE INTEREST AND PRINCIPAL - FIRST FIVE YEARS
 EDA FINANCING PACKAGE ONLY
 5 3/4% FOR 25 YEARS

	Sublevels # 1 and # 2	Levels # 1-# 4 (Car Parking)	Levels # 1-# 11 (Excluding Car Parking)	Total
Annual Total-Monthly Payments of Interest and Principal	<u>\$ 323,450</u>	<u>\$ 180,000</u>	<u>\$ 1,240,000</u>	<u>\$ 1,743,450</u>
First Five Year's Calculation: Amount Financed (90%)	4,284,290	2,387,260	16,425,000	23,096,550
Monthly Payment - Interest and Principal (.006291064 x Original Loan)	26,953	15,018	103,331	145,302
Less: Interest in 1st Month (.00479166 x Original Loan)	20,529	11,439	78,703	110,671
Principal Repaid in 1st Month	6,424	3,579	24,628	34,631
Principal Paid in Five Years (69.3236021211 x 1st Principal)	445,335	248,109	1,707,302	2,400,746
Total Payments in Five Years (5 x Annual Total)	<u>1,617,250</u>	<u>900,000</u>	<u>6,200,000</u>	<u>8,717,250</u>
Interest Paid in Five Years (Total Paid-Principal Paid)	1,171,915	651,891	4,492,698	6,316,504
Average Annual Principal (Total Principal ÷ 5)	<u>89,100</u>	<u>49,600</u>	<u>341,500</u>	<u>480,200</u>
Average Annual Interest (Total Interest ÷ 5)	\$ 234,350	\$ 130,400	\$ 898,500	\$ 1,263,250

EXHIBIT 8
 PROTOTYPE BUILDING ONE
 PRO FORMA DEPRECIATION-DOUBLE DECLINING BALANCE FOR FIRST FIVE YEARS
 EDA FINANCING PACKAGE ONLY

	Sublevels #1 and #2	Levels #1-#4 (Car Parking)	Levels #1-#11 (Excluding Car Parking)	Total
Project Cost:				
Beginning Balance ¹	\$4,390,290	\$2,652,260	\$18,252,450	\$25,295,000
Depreciation-Double Declining				
1st Year	195,120	117,900	811,210	1,124,230
Book Value	4,195,170	2,534,360	17,441,240	24,170,770
2nd Year	186,450	112,650	775,150	1,074,250
Book Value	4,008,720	2,421,710	16,666,090	23,096,520
3rd Year	178,160	107,630	740,700	1,026,490
Book Value	3,830,560	2,314,080	15,925,390	22,070,030
4th Year	170,250	102,850	707,800	980,900
Book Value	3,660,310	2,211,230	15,217,590	21,089,130
5th Year	162,700	98,275	676,330	937,305
Book Value	3,497,610	2,112,955	14,541,260	20,151,825
Total Depreciation	\$ 892,680	\$ 539,305	\$ 3,711,190	\$ 5,143,175
Five-Year Average	\$ 178,550	\$ 107,860	\$ 742,240	\$ 1,028,650

NOTE: ¹ Includes costs of building, architects, engineers, construction insurance and financing, management and contingency; excludes land costs of \$370,000.00 which are not depreciable.

In addition to the test of the tenant market, separate discussions were held with representatives of the City Administration and with private developers. A full presentation was made, similar to that given to the potential food industry tenants (see Appendix 3, Section C) and the discussions are summarized below.

CITY GOVERNMENT

Presentations were made to members of the Mayor's staff and department heads, in addition to regular progress reports and meetings with the City's project director. They generally felt that the City's involvement in implementing this project would depend on its economic feasibility. That is, the prime mover would have to be a private developer or group or the federal government. One official stated that if the City were to participate, it would have to be able to get its money back over a period of years. Another felt that the City would participate by making the site and utility improvements if it has some assurance that this is a reasonable venture; however, the actual financing could not be undertaken by the City.

There was recognition of several problems which face the City. Many food industry firms are faced with the threat of going out of business, because they cannot afford to upgrade their facilities in keeping with the requirements of the new federal meat inspection laws. This may mean a loss of jobs for Cleveland residents and a loss of industry and income to the City. The question was also raised as to whether any extensive industrial development would be possible in the City without federal subsidy in light of the limited amount of land and the high cost of multi-level construction.

It was pointed out that this project must have national significance in order to merit federal financing. The major considerations which would justify the development of Prototype One would be its social, economic and community benefits to Cleveland and its value as a national prototype or pilot project.

PRIVATE DEVELOPERS

The representative of a large development company with interests in several midwestern states, stated that his firm's major concern would be with the building efficiency. In order to be considered for development, a building has to have an 80% efficiency, based on net rentable area. The total project cost is not a deterrent in and of itself, since many of their

developments are in excess of \$12,000,000.00 to \$15,000,000.00. As far as tenants are concerned, this developer would require a guarantee that the tenants would pay at the required rental rate; letters of intent would be required from potential tenants with good credit, who could carry a mortgage for tenant improvements.

In discussing the food industry, he recognized that there are certain facets of this industry which tend to group; however, he does not feel it is possible to put all food industries together in one location. While he acknowledges the existence of the problems involved in developing a building in Gladstone and on urban renewal land, he stated that his company's major concern is purely economical. Further, he stated that the management of such a facility would be beyond his company's capability; if they would develop this project, they would work out an arrangement with a management service.

A local realtor-developer was of the opinion that the Gladstone area is not competitive with suburban industrial areas. He saw proximity to like industry or markets and proximity to a large market of low or semi-skilled labor as being the major attraction of the area. Cleveland's higher real estate tax rate and higher land costs were identified as major disadvantages. He agreed with the idea of a multi-stage development, starting with one complex and proceeding to develop the entire Gladstone area in planned phases. However, he favors the development of single level buildings, possibly all under one owner.

He identified the current rental market as being \$1.25 to \$1.50 per square foot. At the same time, he pointed out that land cost would have to be about \$25,000.00 per acre or \$.50 to \$.60 per square foot. His reaction to the multi-level concept was negative and he said the current trend is toward one or two story buildings. He was also not in favor of the central building management for truck docking and building activities.

PURPOSE

The objective of this study was to assess the overall market demand for a multi-level building for food industry tenants. This was achieved by a test program which involved interviews with a broad cross section of food industry entrepreneurs. The most important output from the market test was to ascertain realistic reactions to the proposed project and to determine the value of the thirteen level Prototype One to the tenant prospects and to the food industry as a whole. To accomplish this, factual discussions were stimulated which brought out opinions as to the opportunities and problems offered by the multi-level concept. These interview findings, together with data gathered from other research, were analyzed to form the basis of evaluating Prototype Building One.

SCOPE OF MARKET TEST

Because of the complex nature of this project, it was determined that in-depth personal interviews would be the test method. The possibility of a mail survey to a larger number of contacts within the community and/or the industries studied was considered but appeared to present several limitations. First, there would be no control over the position of the person within the firm who would complete the form. Second, a lengthy written statement would be required to explain the project and there was greater possibility of misunderstanding. Third, the number of responses which might be anticipated from such a survey was unknown, but would most likely be quite small. Finally, a mail survey would not permit the flexibility of a personal interview; there would be no opportunity to follow up a specific line of questioning and it would not permit an accurate assessment of the interest of the interviewee. Personal interviews would best expose the project to the selected market, and provide background information.

The primary target firms were considered to be those who presently lack adjacent land for expansion, who have few relocation possibilities open in the City, and who face deterioration, functional and physical obsolescence in their present facility.

A preliminary tenant prospect profile was developed. This was used as the basis of the financial analysis, material handling data and market determination. This preliminary list of tenant prospects included the following categories:

- Automatic merchandising service companies who sell food through vending machines
- Industrial and social caterers

- Meat and sausage processor - wholesalers (excluded meat packers-slaughter houses)
- Fish and poultry processor - wholesalers
- Bakers and snack food producers
- Prepared foods processors and wholesalers
- Frozen food distributors

A series of preliminary telephone interviews were conducted to develop a better understanding of the kinds of food industry tenants that would be most able to use multi-level space. Based on the information from these interviews and other research data, certain categories were eliminated from consideration.

- Bakeries, dairies and bottlers of soft drinks require special process layout in terms of manufacturing and they also have large fleets of trucks which are most efficiently and economically loaded directly adjacent to the end of their production lines and/or storage areas. In a multi-level building, neither of these needs could be efficiently met. These three industries account for approximately 60% of the total food manufacturing employment in Cuyahoga County.
- The prepared frozen foods category, which employs about 400 people in Cuyahoga County, is dominated by one firm - Stouffer Foods Division of Litton Industries. This firm is the largest local manufacturer in the food processing industry and employs about 90% of the 400 employees. They recently have completed a large new food processing and storage facility in a southeastern suburb which is capable of producing 80 million pounds of convenience foods per year.
- The large food chain operations in the area were not considered as tenant prospects, since they all have moved or plan to move their processing and warehousing activities to the suburbs. The very large space requirements of the chains did not match the specifications of the multi-level building. The move to the suburbs has been dictated by the fact that large acreage tracts with good rail and freeway access were available at prices far below central city land. In addition, these distribution operations serve areas larger than the metropolitan market and, therefore, do not require a central city location. Lower taxes in these suburbs also contributed to these moves.

The prototype building design provides about 30,000 net usable square feet on each processing floor. Because of the strong tendency of food manufacturers to operate on one level, the size of a single floor in the designed building precluded the need to market test with very large space users.

Before the market testing began, it was determined that interviews with food processors would be emphasized. This was based on the rationale that processors have a better ability to pay higher rent because there is value added to the food, their turnover of material would be less frequent than those who do not process, and their shipping and receiving would be less susceptible to the high peaking factors of the jobbers, purveyors, and commission merchants who have locally oriented markets. It became apparent during early days of testing that the test should also include contacts with representative food jobbers, purveyors and commission merchants. During the entire market test, thirty-five persons representing twenty-nine different companies and agencies were interviewed.

The interviews included discussions with 20 executives, usually the president or vice president, in large, medium and small size food operations; six different private developers; representatives of the City of Cleveland, the Greater Cleveland Growth Association, and the Greater Cleveland Growth Corporation. Specifically, the types of tenant prospects interviewed are as follows:

- Two automatic vending and catering operations
- One catering operation
- Two food purveyors (including frozen food and general line food)
- Three commission merchants (fresh produce)
- One fish processor-wholesaler
- One meat processor-wholesaler
- Two bakery-snack food operations
- One major chain store operation
- Seven meat processor-wholesalers

In addition to those actually interviewed, twelve other contacts were made by telephone, but only limited information was obtained. Of these, four had appointments scheduled but were unable to attend a personal interview.

CONDUCT AND FORMAT OF INTERVIEWS

In making preliminary outlines of content and format, certain assumptions were made.

- It was hypothesized that the proximity of the site to the major food distribution terminal area in Cleveland would have some positive effect in stimulating certain food processors to select the area as a desirable site alternative if there was a need to relocate. Since relocation to a new building would increase the overall space costs for most food firms, it was decided that the interviews would stress the specific benefits and overall cost saving advantages of the proposed building; the actual rental range per square foot would be de-emphasized.
- The basic premise in the interview presentations and in the discussion period was to present as many descriptive facts about the proposed project as possible, without acting in the capacity of promoters (who would normally try to obtain a specific tenant commitment).
- Since it was impossible to meet with every food business categorized under our selection criteria, the attempt was made to obtain reactions and information that would broadly represent opinions of the firm represented and similar firms.

The selected tenant prospects were initially contacted by telephone and personal interviews were arranged. All but four of the market test interviews were held in the offices of William A. Gould & Associates, thereby accomplishing these objectives:

- Display of a comprehensive graphic presentation of the project area and the engineering and design scheme, thereby allowing for better understanding and discussion.
- Use of the scale model of the proposed building and its surrounding environs.
- Minimizing the interruptions and achieving full participation in the discussion.

For purposes of those interviews which were conducted at the interviewee's place of business, a set of slides and related drawings were used.

The general format of the market test interviews was as follows:

- Review of the findings and conclusions of the 1965 study of vacant industrial land and buildings and their potential.
- Review of the findings of Phase I of this study.
- Review of the status of the Gladstone Urban Renewal project.

- Review of the reasons for this study, involving the desire of the City of Cleveland and the Economic Development Administration to find solutions to the industrial move-out trends in Cleveland and other central cities of major metropolitan areas.
- Review of the present food industry situation, the reasons for its selection as the basis of this study.
- Review of specific objectives which were sought for the food industry, for Cleveland and for application in other metropolitan areas with industrial land scarcity.
- Review of the roles and responsibilities of the City of Cleveland, the Economic Development Administration of the United States Department of Commerce, William A. Gould & Associates, and its consultants.
- Graphic presentation of the proposed project, including the building design, and related off-site improvements.
- Use of a Tenant Fact Sheet which gave the basic building data.
- Discussion and questions period.

MARKET TEST FINDINGS AND CONCLUSIONS

Five broad questions were formulated as a basic framework for the market test. These questions are listed below with all relevant findings and conclusions.

WHAT IS THE REACTION TO THE BASIC MULTI-LEVEL DESIGN CONCEPT FOR THE CLEVELAND FOOD INDUSTRY IN THE GLADSTONE LOCATION?

The concept of a multi-level industrial facility stimulated the most discussion and the general consensus was that the market demand for such a facility is limited among Cleveland area food processing firms. The interviewees expressed several reasons that accounted for this.

- Interviewees expressed a preference for single level facilities. This was expressed by firms presently occupying two or three level facilities and by firms leasing one floor in a multi-level facility. Two automatic merchandising firms indicated that their businesses operated most efficiently on one level. Another large automatic merchandising operation who was using 75,000 square feet was regarded as an excellent prospect early in the study, but they later decided to move to a suburban location. With isolated

- exceptions, those food industry companies which have made facility moves in the past few years have gone to single level space.
- Because the Gladstone area now encompasses some 70 acres of vacant industrial land, it was difficult for interviewees to visualize the principles of long-range land planning because of the eventual scarcity of industrial land in the central city. They did not recognize the need for multi-level industrial facilities and stated preference for developing the area with single level structures.
 - Management of smaller firms desire close personal control over incoming and outgoing trucks, physical loading and unloading, with the ability to observe these operations. The multi-level facility as originally designed would eliminate this possibility. A caterer suggested that a lower level floor of the building be designed to accommodate small delivery trucks which could enter the floor and actually circulate through the processing space to load the truck most efficiently.
 - Concern was expressed, by certain processors, that odors, waste control problems and other special characteristics of their operations would not be compatible with other tenants.
 - The question of flexibility for expansion was of concern to larger tenant prospects who might be able to initially lease an entire floor. There was adverse reaction to the possibility of future expansion to a floor above or below.
 - Some were concerned over expansion in a multi-tenant facility. This could be alleviated by a competent building management and a flexible leasing program.
 - The building is designed to uniform engineering standards and specifications in order to provide for tenant flexibility. However, some tenant prospects felt their needs did not warrant this type of construction.
 - Concern was expressed about having to make relatively large expenditures for special equipment and built-in improvements in a leased space, where a physical move later on would be extremely costly.

The Gladstone location continues to be a desirable central location for food distributors such as commission merchants, purveyors and jobbers. However, it no longer is attractive to food processors whose geographical market area covers all of northern Ohio or more. Four of

five major food chains have moved their distribution, storage and processing facilities to large acre sites southeast of Cleveland and the fifth will do so in the next few years. Three other food related firms have moved or plan to move to this same suburban area, including Cleveland's largest general line food wholesaler, the largest prepared foods processor and the largest automatic merchandising operation.

The interview program results indicated that the interviewees would prefer a two or three level building with truck access on all levels and docking space provided immediately adjacent to tenant plant space areas. Tenants for this redesigned building should be considered as coming from meat processors- wholesalers, purveyors, commission merchants and jobbers, since the market potential for food processors appears limited. Because the major effort in the design and market test of the prototype building was directed toward processors, it is not known how much space would be required to fill the needs of this new tenant group. However, discussions indicated that a market for 250,000 to 400,000 square feet would not be unrealistic if an acceptable lease rate package could be developed.

Several interviewees stated that the general scarcity of well located industrial land in Cleveland gives the Gladstone area good overall potential for new facility construction. However, the historical image connected with the Gladstone area was generally not favorable because of the near-by congested areas and the potential for vandalism, pilferage and crime. The Gladstone Urban Renewal Project is now eleven years old and there has been no significant redevelopment progress. In view of this, there was scepticism as to probable implementation and fast action needed to meet their immediate needs.

The developer interest coincided with that of the prospective tenants. The construction of a multi-level building which meets all code requirements and provides space for a broad range of different food processing operations involves provisions for truck docking and holding facilities, parking and a material handling system. This, in turn, would result in a low building efficiency ratio and high rental rates. The developers also expressed concern about the financial stability of the firms that would require space in a facility of this type. They generally expressed concern over the success of the multi-level concept and none were inclined to include such a building in their plans to meet space needs for manufacturing concerns.

WHAT ARE THE POTENTIAL BENEFITS OF THE RELATED SPACE USES AND SERVICE FUNCTIONS PROGRAMMED FOR AVAILABILITY IN THE BUILDING ?

A number of tenant services were considered for inclusion in the building. These services could be utilized by any of the tenants who would otherwise be unable to afford them on an individual basis. The interviewees generally agreed that such services would be advantageous and desirable. These services included:

- An employee cafeteria
- A first class restaurant
- A common lobby and reception area, including conference rooms
- A central switchboard
- A paging system for each tenant and the docking area
- A test kitchen and foods research library
- Office areas for food brokers, food inspectors and similar related persons
- A machinery maintenance firm
- Bank branch and drug store

WHAT LOCATIONAL ADVANTAGES AND DISADVANTAGES ARE THERE WITH REGARD TO TRUCK AND RAIL ACCESS, PUBLIC TRANSPORTATION, PROXIMITY TO CUSTOMERS, COMPETITORS, EMPLOYEES, RAW MATERIAL SUPPLIERS, WAREHOUSING AND COLD STORAGE FACILITIES ?

The Gladstone site area offers many locational advantages to continue as the major fresh produce market center for the metropolitan area, serving as a business location for commission merchants, meat processor-wholesalers, purveyors and jobbers. These include:

- The present clustering of commission merchants and wholesalers
- The availability of rail
- Easy access to the site for trucks by major thoroughfares and freeways
- Geographically central location for smaller store buyers who come from all sections of the city.
- Minimized travel time required between hotels, restaurants and other institutions served.

Truck and rail access are excellent in the site area. The Gladstone site area provides as good a location with regard to truck and rail access as any site in the City for those processors or distributors who need a central city site. However, for food processors serving a broad market area, the Gladstone site does not offer a strong advantage over alternative suburban sites which are also located in proximity to freeway access.

Interviewees presently accustomed to receiving rail carloads now felt that the availability of a covered double track siding adjacent to the proposed first floor warehouse was an advantage. Those not now on or near rail sidings indicated that motor truck service could continue to meet their needs and provide a faster and more flexible transportation service.

The accessibility to major routes of public transportation, which were considered to be a major plus factor initially, does not now appear to be a significant advantage. The interviewees indicated that their employees preferred not to ride the bus lines in the general area, especially those who would be coming or leaving in the dark hours. Use of the rapid transit, which stops within five or six blocks, would require a ten minute walk or a transfer to existing bus lines to the site or the establishment of a new bus loop line.

The question of proximity to customers relates to the market area covered. For firms whose customers are located in Cleveland and its surrounding suburbs, Gladstone is a desirable site. As firms grow and enlarge their market area, the central city may become a minor portion of their total business and the need for a central city location diminishes.

The larger food processors do not appear to have any need or desire to be located in proximity to customers. Food jobbers and purveyors, and commission merchants find it important to be located in or near the food terminal area of Gladstone since this gives the opportunity to buy from each other as necessary. The typical fresh fruit and vegetable merchant finds it essential to be located in a cluster of like businesses, since their customers are accustomed to the central market concept where they can compare prices and merchandise.

The heavy concentration of potential employees in Gladstone area and the availability of lower skilled people does not appear to be an attraction to most food businesses. The food industry labor wage scale is such that the lowest job rate is \$3.08 an hour plus fringe benefits of \$.70 to \$.80 per hour. Therefore, the food employer does not want to hire low or non-skilled

employees who will require training and not be immediately productive. In addition, the smaller and medium sized food processing and wholesaling firms have not been expanding their labor force substantially over the past few years. This limits the need for them to relocate into denser labor market areas where persons are presently unemployed. Other firms which have employed lower skilled laborers in the past, have expressed some concern over the ability to retain these employees after making the move to a suburban location. However, this factor has not deterred many from moving out of the central city. One large catering operation presently in a suburban location, indicated an interest in relocating in the Gladstone area because of proximity to food suppliers and convenience for his employees who reside mostly in the central city area.

The Cleveland Board of Education has recently taken over a large building adjacent to the proposed multi-level building. This is to be used for job training programs for younger and low skilled persons. The interviewees indicated that, if an employee had all other required qualifications, they would rather train them under personal supervision at their own plant. In addition, there is no apprentice wage rate in the local food processing industry.

Proximity to raw material suppliers is an unknown factor since the majority of food to be processed is brought in from areas outside of metropolitan Cleveland and few have had the opportunity to evaluate this locational advantage.

Many of the prospective tenants interviewed now use a number of different cold storage and warehouse facilities located in various buildings throughout the central city. They believed it would be desirable to have common cold and frozen storage included in any groupings of food processors and wholesalers should such a new grouping develop.

WHAT BENEFITS OR PROBLEMS ARE ENVISIONED WITH THE PROPOSED MATERIAL HANDLING CONCEPT AND SUB-LEVEL TRUCK DISTRIBUTION AND DOCKING ARRANGEMENTS?

The material handling system of the proposed building recognizes the problem that food businesses currently utilize a wide variety of material handling procedures. The concept of separating truck traffic from car traffic and pedestrian flow from product flow was very well

received. It was designed to provide the most efficient system for a multi-level structure. The concept, which was tested in these interviews, was that a building management service would operate the material handling operation from docks to tenant floors. This method was not satisfactory to many interviewees because of their desire to personally control these activities and because of the need for a maximum of flexibility to meet the minute-to-minute changes which occur from coordinating incoming deliveries and rush orders.

Interviewees expressed opinion as to the general difficulty of consolidating the various material handling methods used into one program which could meet the needs of a building with perhaps twenty or twenty-five tenants. For example, the typical meat processor-wholesaler utilizes a sliding overhead rail track from which meat is hung by hooks and pushed along a track from the street into the plant. Food jobbers, purveyors and processor-wholesalers use a variety of packaging methods and sizes which adds further difficulties to a single type of material handling system.

The truck docking and holding system is a two-level system whereby the trucks enter on a holding level where they wait until they are assigned by a central control station, to a dock on the level below. This was designed for food processors whose truck schedules are more stable than those of locally oriented jobbers, purveyors or commission merchants. The amount of docking and holding space offers a better alternative for this latter group than presently exists. These firms experience a great amount of congestion at peak hours because there is limited docking and holding space in their present facilities to service their needs. Although they recognize that the proposed building system would produce a more orderly traffic flow, there was concern about the amount of time a truck might have to wait in the holding area before being directed to a dock space. Many interviewees expressed concern about the congestion problems which might occur at peak traffic hours by having all incoming and outgoing products channelled from elevator banks to trucks and vice versa.

With one elevator assigned to serve each floor, plus one additional elevator to service all floors, a full floor space tenant would have a private elevator for his own use, plus the reserve elevator for peak periods. However, the amount of floor space required by some tenant prospect interviewees, indicates that space requirements would be less than one floor. With the possibility of four to five tenants on one floor, the interviewees felt there would be confusion in loading and unloading at one elevator entrance.

WHAT RENTAL RANGE WOULD BE ACCEPTABLE FOR SPACE IN THE MULTI-STORY BUILDING?

Smaller and medium sized businesses operating as food merchants or processors in Cleveland have traditionally paid rental rates as low as any industry. These are currently in the range of \$.75 to \$1.25 per square foot. Most of the prospective tenants, being smaller operators, presently have very old plant facilities which are physically and functionally obsolete. Under the new federal meat and poultry inspection laws to be adopted in the near future, many of these businesses will probably be forced to relocate. Those meat processor-wholesalers who intend to stay in business, and who can afford to do so, will expect to absorb higher rental levels than they are now incurring.

Most interviewees could not easily make comparisons of the costs they would incur in the proposed new building versus those presently incurred. In addition, most could not accurately predict what various firms in the industry could absorb as a new rental structure. But, it was generally felt that the broad range of \$2.00 to \$3.00 per square foot including operating costs would be the maximum that most could afford under foreseeable conditions in the industry.

One of the major problems seems to be that many small businessmen in the food industry have not been able to build up capital reserves adequate to meet expansion needs dictated by growing markets. Because of a low profit margin on sales and the pressure of larger firms gaining an increasing share of the market, these small firms do not represent good prospects for bank loans which could allow them to construct their own facilities. Therefore, they have continued to occupy the same old quarters for years and have thus established themselves in a tradition of inefficiency. These factors present obstacles to the construction of a new multi-level facility for these businesses at a rental rate which they can afford. The required rent, which is in excess of \$8.00 per square foot, could not be absorbed by these businesses as presently operated.

APPENDIX 4

PROTOTYPE BUILDING TWO

SECTION A - BUILDING PROGRAM AND DESIGN

SECTION B - FINANCIAL ANALYSIS

SECTION C - DEVELOPMENT CONSIDERATIONS

Based on the original work program, a modification in the Prototype One design was to be made following the market test. (See Chapter 3, Appendix 3, Section C). However, the results of the market test showed that the tenant market and its needs were substantially different from those which had been assumed and programmed for Prototype One. The decision was therefore made to revise the building design to meet the needs of the actual market and to attempt to bring the rental rate into a range which they could afford.

Commission merchants, purveyors, jobbers and meat processor-wholesalers who presently are located in or near the Gladstone area form the potential tenant market. Their requirements and the suggested design solution are summarized in the description below.

GENERAL PLANNING REQUIREMENTS

The general planning data and analysis which was developed for Prototype One (see Appendix 2, Section F) remains valid since both buildings use the same site. This had involved a thorough investigation of existing characteristics of the site and the surrounding area so that a program of land use functions, linkages, land acquisition, and thoroughfare planning could develop within a realistic framework. The change in building tenants and program involved some modifications in the relationship of the site and building to the general area.

- Evaluation of relationship with the surrounding area: (See Exhibit E3, Chapter 4.)
 - a. Pedestrian linkage: Prototype Building Two is to be located on the western portion of the site, adjacent to the Northern Ohio Food Terminal. This relationship is important because tenants of both facilities would be jobbers, commission merchants and purveyors. Historically this group has always been located close to each other because of the comparative buying which is typical of their customers. The major entrance is located on Woodland Avenue to relate to bus stops, car drop-offs and public housing across the street with a secondary entrance on East 40th Street to relate to the Northern Ohio Food Terminal.
 - b. Adjacent land uses and building: This building design is three levels high. Two are above grade with the possibility of air rights development for office space, restaurant, and motel. Therefore, this building would fit in with its surrounding one, two, and three level buildings.

- Evaluation of vehicular circulation for the site and surrounding area in order to alleviate traffic congestion: (See Exhibit E3, Chapter 4.)
 - a. Service roads: To the south of the proposed facility, a three level service road for trucks is proposed. This eliminates the possibility of the truck traffic congesting and inhibiting the automobile traffic in the area. This will not only serve the first stage of development but will serve latter developments on both sides of the roadway. The new three-level road is designed for a one-way traffic movement with the entrance ramps from East 40th Street and the exit ramps discharging the outward bound trucks onto East 51st Street.
 - b. As with Prototype One, it is recommended that Woodland Avenue and East 40th Street be widened to accommodate the heavier flow of traffic.

PHYSICAL SITE REQUIREMENTS

The site requirements are functionally and visually part of the general planning requirements and are related to the surrounding area. The objective is that each foot of urban land is designated for a specific functional use such as construction, parking, circulation, or landscaping. Through investigation and analysis of the relationship of these activities, the site plan creates a proper balance of land use for a pleasing environment as well as a workable blending of functional activities.

The general concepts which were applied to Prototype One (see Appendix 2, Section F) and the specific data regarding the site remain applicable to Prototype Two. The following represent modifications in light of the new building program and tenants:

- Staging system: The size of the project has been limited to meet present tenants market potential and developer capability. However, a staged system of development has been projected to illustrate the further potential of this kind of project if it is successful and to maintain the design continuity. Prototype Two is planned as the first phase of a three stage development. The subsequent stages would be similar three level facilities. Each building would have the possibility of further air rights development which could include commercial or office space or additional industrial space.

- Adequate circulation system
 - a. Separate entrance lanes for trucks and cars: Because of the advantages of maintaining separate truck and car traffic, entrances to the site are designed with the trucks entering the Prototype Building off the new three level service road, and cars from Woodland Avenue.
 - b. Off-street holding, and docking space for trucks: In order to fulfill the trucking requirements of the facility, each of the three levels has its own docking spaces immediately adjacent to the tenant space. Since a higher ratio of docking spaces per rentable square foot was provided than in Prototype One, the amount of holding space was reduced. There is some holding space on all three levels.
 - c. Parking for employees and guests: A total of 470 parking spaces for employees and guests was provided on the roof of the three level facility. The ratio of spaces to building employees is increased from Building One because of the market test, which indicated that most employees of those interviewed prefer not to use public transportation. Also, the nature of the tenants' businesses is such that there would probably be more customers coming to the building than there would be for the processor tenant group.
 - d. Rail facilities: Because rail facilities exist on the site, and some food industry firms need rail facilities, provisions have been made to bring rail access to the building. The change in the location of the building to the western portion of the site necessitates that two new spur tracks be designed to connect with existing tracks to the south. These new tracks extend into the facility so that they are covered.
- Zoning and urban renewal standards: As indicated in Appendix 2, Section F, the Gladstone Renewal Plan and the Cleveland Zoning Ordinance have certain requirements as to building height, setbacks, and coverage. The height limitation does not conflict with Prototype Two since it extends two levels above grade. However, the coverage and setback restrictions have not been observed because of the need to utilize valuable urban industrial land most efficiently and because the recommended widening of street right of ways effectively separates this building from surrounding uses.

BUILDING DESCRIPTION

This building structure contains approximately 859,000 square feet of which 35.5% is rentable space for industrial activities. The balance of the space is used for truck and train maneuvering space, access ramp for car parking, mechanical rooms, and vertical circulation. The structure consists of one sub-grade level, two other levels, and a roof level. (See Chapter 4, Exhibits E1 through E5.)

- Sub-level 1 provides industrial space for warehousing or processing and truck circulation and docking space.
- Level 1 provides industrial space for warehousing or processing, truck circulation and docking space, and rail sidings.
- Level 2 provides industrial space for warehousing or processing and truck circulation and docking space.
- Roof level provides car parking, mechanical equipment penthouse, and space for air rights development which could include a restaurant, motel for truck drivers, office space, etc.

PHYSICAL BUILDING REQUIREMENTS

The physical building requirements recognize the fact that the detailed requirements of each tenant will differ, and are unknown. Therefore, the building has to provide the flexibility to enable the tenants to achieve their unique requirements. Following are the items which were considered:

- General requirements
 - a. Adequate space for the use: After the amount of rentable space was determined, based on the anticipated food industry market for Prototype Two, the amount of space required for the supporting functions such as material handling, truck maneuvering and docking, train docking, and car parking was determined.
 - b. Satisfactory relationship of the elements: The facility is designed so that all of the elements worked well independently and together with adequate circulation to connect all of the related spaces.

- 1) Vertical pedestrian core inter-connects processing, office, commercial, automobile and truck areas.
 - 2) Vertical material handling core inter-connects processing truck and train areas.
- Specific tenant requirements
- a. Flexibility and universality: As with Prototype One, the space within each functional area of the building is designed to be adequate and uniform to meet the needs of any potential tenants or uses.
 - 1) Adaptable to various sizes of tenants or uses
 - a) Each of the three tenant floors has a total rentable area of approximately 100,000 square feet. A tenant can rent any size space from 2,700 square feet up to one complete floor. In this building a multi-tenant floor is just as efficient as a single tenant floor because all of the access to the tenant space is from the truck docks and no additional circulation corridors are necessary. The area of each floor is larger than the processing levels of Prototype One, providing more flexibility for expansion.
 - b) Off-street parking: Parking spaces are provided on the roof of the proposed three level structure. The parking spaces are uncovered and there is a total capacity of 470 cars. Extending to the roof are seven passenger elevators which provide access to each of the three processing or warehousing floors.
 - 2) Truck facilities: Trucks have access to all three levels of the building. After entering the ramp, they can proceed to the level where they are going to conduct their business. Each tenant has his own private truck docks where loading and unloading take place. The building has a total of 184 truck docks and holding space for 26 trucks. The number of truck docks each tenant has is in direct proportion to the amount of space he rents.
 - 3) Train facilities: On Level 1, there are two rail sidings which extend into the building. These sidings have a capacity for 16 rail cars. Adjacent to the tracks is a common train dock which is connected to the truck docks on level 1. To facilitate moving materials between the train dock and all building levels, there is an internal ramp system for fork lift trucks. This connects the truck docks on all levels with the train dock on

level 1.

- 4) Adequate floor loads: Tenant requirements for industrial areas and truck areas are similar to those in Prototype One as to the possibility of heavy equipment, concentrated storage of materials and the need to accommodate large tractor-trailer trucks. The building is designed with the following floor loads:
 - a) Truck maneuvering - 250 lbs./sq. ft.
 - b) Truck and train docks - 200 lbs./sq. ft.
 - c) Tenant industrial space - 200 lbs./sq. ft.
 - d) Roof car parking - 75 lbs./sq. ft.
 - e) Roof area for future air rights - 100 lbs./sq. ft.
- 5) Adequate and uniform bay sizes
 - a) Tenant space - 30' 0" x 30' 0" for reasons of flexibility and general acceptance in industrial construction, as discussed in Appendix 2, Section F.
 - b) Truck dock area - 30' 0" x 30' 0" - permits maneuvering of fork lift trucks and stacking of pallets.
 - c) Truck maneuvering area - 30' 0" x 60' 0" generally used to accommodate large tractor trailer trucks; 60' 0" x 60' 0" bay in some areas for an adequate turning radius.
- 6) Adequate and uniform ceiling heights: Provides for truck clearance, stacking of pallets and overhead chain hoists or conveyors.
 - a) Tenant space: 17'0" on sub-level 1 and level 1
13'6" on level 2
 - b) Truck space: 14'6" minimum clearance on all levels
 - c) Mechanical penthouse: 15'0"
 - d) Toilet rooms: 9'0"
- 7) Floor to floor heights
 - a) Tenant space: 20'0" on sub-level 1 and level 1
16'6" on level 2
 - b) Truck space: 20'0" on all three levels

- c) Mechanical penthouse: 17'0"
- d) Toilet rooms: 17'0" on sub-levels 1 and level 1
13'6" on level 2
- 8) Suitable materials and finishes
 - a) The entire facility is constructed out of poured-in-place reinforced concrete.
 - b) Generally, shell space is provided so that each tenant can provide the finishes which are most suitable to their need.
 - (1) Public spaces (elevator lobbies)
 - (a) Floor - concrete with hardener
 - (b) Walls - concrete, masonry (brick or structural facing tile)
 - (c) Ceiling - lay-in-grid, mineral fiber panels
 - (2) Toilet rooms
 - (a) Floor - ceramic tile
 - (b) Base - ceramic tile
 - (c) Walls - ceramic tile
 - (d) Ceiling - lay-in-grid, mineral fiber panels
 - (3) Warehousing or processing space
 - (a) Floor - exposed concrete
 - (b) Walls - concrete block, exterior walls only
 - (c) Ceiling - exposed concrete
 - (4) Loading docks
 - (a) Floor - concrete with hardener
 - (b) Ceiling - exposed concrete
 - (c) Dock levelers - each docking space is equipped with a leveler
 - (d) Dock bumpers - each dock is adequately equipped
 - c) Doors and door frames
 - (1) Doors - hollow metal with enamel finish
 - (2) Door frames - hollow metal with enamel finish

- d) Exterior walls
 - (1) Truck circulation area: Poured-in-place concrete frame with an upturned beam to form the spandrel panel. The area above the spandrel is open to facilitate fresh air venting of the truck area.
 - (2) Rentable warehousing or processing space: Concrete block with hollow metal doors and frames.
- 9) Adequate toilet room facilities: Separate men's and women's toilet rooms are provided on each level. The toilet rooms provide only the basic building code requirements. If the locker and shower rooms are required by an individual tenant, he will install them at his own expense.
- 10) Passenger elevators: There are seven automatic elevators which are accessible from the roof parking area and the other levels of the building.
 - a) Cab capacity - 2500 lbs.
 - b) Door size - 3'6" x 7'0"
 - c) Speed - 200 feet per minute
- 11) Adequate and flexible material handling system to meet all types of potential tenant needs: All of the material handling is to be done by the individual tenants. There are no material handling elevators. An internal ramp system, which connects the loading docks on all three levels, is provided for fork lift trucks. This permits movement of materials between the different floors for train shipping and receiving on level 1, and for selling and buying between building tenants.
- 12) Use of a "grid" or similar system for flexibility and ease in locating mechanical and electrical systems: This facility is not designed with this type of system for the following reasons:
 - a) The selected potential tenants for this facility are mainly food distributors. This tenant group does not require as many services and utilities as food processors.

- b) Since the ceiling in the tenantspace is very high, there is ample room to suspend the services and utilities from the structure above.
- 13) Mechanical and electrical system: Certain provision is made for adequate supply lines for all required utilities which could be extended to the individual tenant spaces as required. Each tenant would be responsible for supplying utilities in his own space to meet his requirements. All of the tenant service installations must be approved by the building owner. Following are the utilities and services which were designed into the building.
- a) Plumbing
 - (1) Water: Hot and cold water service is supplied to all public toilet rooms and janitor spaces. For tenant use, there are cold water lines available at four locations on each floor. If the tenant requires water, he should provide a valve the same size as his intended service line. This valve would be located at the tee joist beyond the main shut-off valve in the shaft, so his water can be turned off without interferences to other tenants. The tenant would also provide a water meter, and then he will be free to run a line as necessary to and within his space.
 - (2) Hot water: If a tenant requires hot water beyond the toilet room service provided by the building, he may provide an electric or gas hot water heater in his space and connect this to his own water supply.
 - (3) Sanitary waste: Public toilet facilities (including lavatories) are provided on each floor. If a tenant requires additional facilities, he may install them at his own expense.
 - (4) Storm water: Storm water stacks are provided on each floor. The tenant may install a "Y" in these stacks to serve any floor drains he may wish to install.
 - b) Industrial waste: Waste is collected at two locations on each floor. Incineration of both edible and unedible garbage and dry waste is provided through this system.

- c) Gas service: Gas is provided at four locations on each floor. When the tenant requires gas, he should provide a valve the same size as his intended service line. This valve should be located at the tee just beyond the main shut-off valve in the shaft, so the tenant's gas can be turned off without interference to the other tenants. The tenant should also provide a gas meter, and then he is free to run a line as necessary to and within his space. All of this will be included in the tenant improvements.
- d) Fire protection: The building is provided with standpipes in each stairwell and with hose cabinets on each floor. Additional hose cabinets made necessary by the tenants layout and sprinklering of tenant spaces shall be installed from tees provided in the standpipes. The installation of these additional items will be at the tenant's expense. Break-glass alarm stations are provided on each floor, with an alarm panel located in the building maintenance office and warning bells installed throughout the building.
- e) Heating and ventilation
 - (1) Air distribution: From the mechanical penthouse where the fans and boiler are located, air is distributed through a supply duct system to the vertical mechanical shafts. The tenant would be responsible for installing his own ducting and variable volume air diffusers, meeting the building engineering standards, to his space. Where a finished ceiling is installed by the tenant, air is returned through openings in the ceiling, making the entire space from the drop ceiling to the bottom of the structure on each floor a return air plenum. Should additional returns or sound baffling be required, the tenant must provide this. If walls are carried to the underside of the structure for sound isolation, openings with appropriate sound attenuation must be installed by the tenant so that air will flow in a normal return path to the mechanical shafts. Where no drop ceiling is installed, the tenant must install return air ducts within his spaces to tie into the vertical shafts or the adjacent tenant's plenum.

The building's air distribution system provides the tenants only with tempered air. If additional heating is required by individual tenants, he will have to provide a supplemental system, unit heaters or a radiant heat at his own expense.

- (2) Ventilation: Ventilation is provided through the fans located in the penthouse (both intake and relief). When the outside temperature is low enough to be useful for cooling, outside air will be introduced above the minimum ventilation requirements.
- (3) Exhaust: All public toilet rooms and janitor spaces are exhausted by separate fans and ducts provided by the owner as part of the basic building.

If process exhaust from the tenant spaces is required, this must be provided by the tenant. Such exhaust can be ducted to one of the utility shafts and thence vertically to the penthouse. Fans must be provided by the tenant.

f) Electricity and communications

- (1) Electric power: Electric service is available at four locations on each floor. The tenant is responsible for metering, switching, and fusing beyond the panel board, and for the installation of all power receptacles.
- (2) Emergency circuits: Emergency circuits are provided in stairs and elevator lobbies as required by code.
- (3) Lighting: General lighting is provided in the public circulation areas, and the truck circulation areas by the owner. The tenant is responsible for installing all lighting within his space. All lighting fixtures must conform with the building engineering standards.
- (4) Telephone: A telephone terminal cabinet is available on each floor. Requirements beyond this point are provided at the tenant's expense.

g) Expandability

- (1) Modular structural system was designed to permit easy expansion of tenant spaces.
- (2) A flexible leasing system using a combination of long and short term leases would facilitate expansion of individual tenants.

b. Economy

- 1) The tenant space is flexible in its design and universally adaptable to any food industry tenant. Thus, it has wide appeal for initial rental purposes. Tenants can expand their facilities within the building; and if a tenant moves out, the space will not become obsolete.
- 2) The building was designed with a minimal amount of construction in the tenant spaces to allow the tenants to provide for their businesses. This will eliminate the possibility of having spaces overdesigned for a tenant's needs.
- 3) The building is designed to achieve maximum efficiency of rentable space by providing an efficient subdivision of the floors and providing a minimal amount of corridors and public spaces.

c. Safety: Safety of the tenants was provided by having a central security system.

d. Common facilities and support facilities

- 1) The following common facilities are designed into the building in order to economically solve some of the potential tenants' functional space requirements:
 - a) Lunch room
 - b) Medical facilities
 - c) Toilet facilities
- 2) Support facilities: Support facilities were not designed into the three tenant levels; however, in a portion of the building the structure has been overdesigned to allow for air rights construction for commercial, office and restaurant facilities.

The assumptions and procedures used in this analysis were similar to those used for Prototype One, since the basic idea was to test the feasibility of private development of Prototype Two. (See Chapter 3, Appendix 3, Section A.)

- Project costs (i.e. costs incurred prior to and during construction) were computed following the same procedure and standards as had been previously set.
- Financing alternatives were analyzed and the E.D.A. package was selected as the most favorable method.
- Annual cash disbursements for each segment were projected by major category: mortgage interest and principal, real estate taxes, insurance, operating and maintenance costs, and building management costs. The procedure was to use the costs established for Prototype One and adjust them as necessary to reflect changes in building design or management.

The details are given in Appendix 3, Section A; major differences are summarized here as they apply to Prototype Two.

	<u>Truck Holding Maneuvering and Docking</u>	<u>Rentable Levels</u>
Prototype One	\$.475 per sq. ft.	\$.753 per sq. ft.
Prototype Two	\$.395 per sq. ft.	\$.753 per sq. ft.

- a. There was a difference of \$.08 per sq. ft. between operating costs for truck and rail facilities. This difference is primarily because of decentralized material handling which requires fewer freight elevators to operate and maintain. Although central support facilities would be much less elaborate for Prototype One, the basic operating and maintenance costs per square foot of rentable space were assumed to be the same for both buildings because:

- The NABOM office building costs were substantially reduced to include only basic utility, maintenance and cleaning costs common to both buildings (\$1.25 per sq. ft. reduced to \$.75 per sq. ft.).
- Almost one-third of the cost is for interior and exterior cleaning and light maintenance of the building shell and public areas. The objective of maintaining an attractive building with high standards of upkeep is common to both buildings.

A cost of \$60 per car space per year was used for the open, rooftop parking level of Prototype Two, because:

- Most maintenance costs of the rooftop can be allocated to the underlying commercial building.
- Electricity costs for lighting are less.
- Damage to cars and to the buildings would be less.

- b. Management fees for Prototype Two were assumed to be \$40,000 less. This reduction includes \$25,000 due to less rentable space to manage, and the elimination of the centralized material handling concept. Car parking management costs were reduced \$15,000 because of the less complex parking operation.
- c. To present the most favorable cash flow for Prototype Two, it was assumed that the cost of land acquisition would be paid for by the City. However, a separate analysis of land cost showed that excluding the cost of land would reduce rental rates by only \$.12 to \$.14 per square foot. (See Exhibit E2 this Appendix.) This reduction is not sufficient to make the required rentals profitable and competitive.
- d. Exhibit E1, this Appendix, summarizes the financial characteristics of the project in the same way as the thirteen level prototype building. However, an additional column has been added which summarizes the effect on rentals of adding a simple 10% after-tax return on investment requirement to the annual cash flow. This requirement increases rentals to \$6.45/sq. ft. and \$6.79/sq. ft. for 100% and 95% occupancy respectively.
- e. Exhibit E10 in this appendix shows that a 100% write-up in the value of the land to the developer for financing purposes reduces his equity requirement slightly. However, there is no reduction in required rental rates as compared to those shown for the 10% return on investment option. The reduced cash requirement for a 10% return on lower equity is offset by higher financing and real estate tax costs resulting from the write-up in land value.

There are major differences in the design and management concepts of the two buildings which are reflected in the financial analysis.

Prototype One assumes that the building management will provide and operate an internal material handling system, while the Prototype Two assumes that tenants maintain individual control over their truck scheduling and material handling operations. Material handling fees are not included in the projected building management costs charged to tenants of Prototype Two.

However, the removal of material handling also affects building design, since in Prototype Two truck docks and holding areas would be constructed on all three levels. In addition, the rail facility for this building would require a costly new two-track spur into the center of the building at grade level. By comparison, Prototype One would centralize truck handling and docking below ground and uses an existing rail bed.

Thus, truck and rail facilities in Prototype Two would be more expensive and would have to be absorbed by less rental space. Costs of these facilities are estimated at \$26.00 per square foot of net rentable space in the Prototype Two compared to estimated costs of \$12.00 per square foot of net rentable space in Prototype One.

Prototype One would require construction and maintenance of central facilities such as a lobby-reception area, lunch room, infirmary, restaurant, commercial offices, and conference rooms. The adjoining parking facility would have three enclosed levels and one rooftop level. Costs of these features are estimated at \$57.00 per square foot of net rentable space.

In contrast, Prototype Two would require less elaborate central facilities (only lunch room, infirmary and rest rooms); it would have very limited office areas; and it would have only open rooftop parking. (Spaces for commercial offices, conference rooms, a restaurant and a motel have not been designed on structure, although air rights would be available for independent development of such facilities in the future.) Costs for these facilities are estimated at \$20.00 per square foot of net rentable space, or about one-third those of the larger building. Thus, the higher costs of truck and rail facilities in the three-level building would be offset by the lower cost of central building ancillary facilities:

	<u>PROTOTYPE TWO</u>	<u>PROTOTYPE ONE</u>
	(cost per square foot)	(cost per square foot)
Trucking and rail support facilities	\$26	\$12
Central building ancillary facilities	<u>20</u>	<u>57</u>
TOTAL FACILITIES	\$46	\$69

EXHIBIT E1

NOTES:

1. It is assumed that annual rentals would be adjusted to cover rising operating and maintenance costs. The amounts shown in this column reflect break-even operations at estimated current operating cost levels.
2. Rentable space applies only to actual available rentable square footage in levels #1 to #3, excluding parking. This totals 305,100 square feet.
3. This is a memo column to show the effect of a return-on-investment requirement on rental rates. A 10% return on equity is used, because the large tax deductions for interest and depreciation in the early years would eliminate federal income taxes. This return on investment is only an estimate and not a detailed calculation. The basic approach was to adjust cash flow by adding 10% of equity, which for the total project was \$140,000.00 or \$.46 per square foot of rentable space.
4. Although land and off-site improvements (excavation, sheeting, bridges, retaining walls, paving) are expected to be provided by the municipality, they are an element of project costs and are therefore included. Since this expense is not expected to be recovered from the tenants, the amount is shown only in project costs and is not included in the break-even cash flow analysis.
5. Land cost is for 312,450 square feet at an estimated price of \$1.25/square foot.
6. Off-site improvements include roads, bridges, ramps and sidewalks.
7. The rooftop parking facilities would require very little extra construction for the actual parking spaces; the major expenditure would be for a 21,150 square foot access ramp. This ramp is included in the total constructed square feet for the entire project, but is not in the rooftop parking square footage, since the latter area is limited to just the 184,500 square feet of actual parking space.
8. Includes land and off-site improvement costs.
9. This represents the break-even rental rate per square foot at 100% occupancy. At 95% occupancy, the rented space in levels #1 - #3 reduces to 289,845 square feet, and the annual cash requirements per square foot would be:

Truck and Rail	\$3.34
Rooftop Parking	.24
Rentable Levels	<u>2.73</u>
TOTAL	\$6.31
10. At 95% occupancy, the annual cash requirements per square foot would be:

Truck and Rail	\$3.34
Rooftop Parking	.24
Rentable Levels	<u>2.73</u>
TOTAL	\$6.31

Truck and Rail	\$3.61
Rooftop Parking	.25
Rentable Levels	<u>2.93</u>
TOTAL	\$6.79

EXHIBIT E2
 PROTOTYPE BUILDING TWO
 CASH REQUIREMENTS FOR FINANCING AND HOLDING LAND
 EDA FINANCING PACKAGE ONLY

Land Cost: 312,450 square feet @ \$1.25/square foot	\$ 390,560
EDA Package: 90% @ 5-3/4% for 25 years	351,500
Equity required - 10%	39,060
Annual total of monthly interest and principal payments	<u>\$ 26,250</u>
Annual real estate taxes, \$5.51/100 @ 40%	<u>\$ 8,600</u>

A. EFFECT ON BREAK-EVEN OPERATIONS

Original break-even cash requirements	\$1,828,600
Add: Annual land financing	26,520
Real estate tax	<u>8,600</u>
New Cash Requirement	\$1,863,720
Rental Rate @ 100% occupancy	\$6.11
Rental Rate @ 95% occupancy	6.43

B. EFFECT ON 10% ROI OPERATIONS

Original break-even cash requirements	\$1,828,600
Add: Annual land financing	26,520
Real estate taxes	8,600
10% return on total equity	<u>144,300</u>
New Cash Requirements @ 10% ROI	\$2,008,020
Rental Rate @ 100% occupancy	\$6.58
Rental Rate @ 95% occupancy	6.93

NOTE: Equity requirements @ 10%

Truck and Rail	\$ 793,600
Rooftop Parking	30,420
Rentable Levels (Excluding Parking)	580,170
Land	<u>39,060</u>
TOTAL	<u>\$1,443,250</u>
10% ROI	\$ 144,300

EXHIBIT E3
 PROTOTYPE BUILDING TWO
 PRO FORMA CASH FLOW ANALYSIS

	Truck and Rail	Rooftop Parking	Rentable Levels (Ex. Parking)	Total
Project Cost	\$7,936,210	\$304,220	\$5,801,670	\$14,042,100
Square feet of construction ¹	506,700	184,500	331,200	859,050 ¹
Project cost per square foot	\$ 15.66	\$ 1.65	\$ 17.52	\$ 19.20 ²
<u>Financing and Equity Alternatives</u>				
1. Conventional Bank Mortgage				
- 7 1/4%, 20 years, 75%	\$5,952,150	\$228,170	\$4,351,250	\$10,531,570
- Equity required, 25%	1,984,060	76,050	1,450,420	3,510,530
2. EDA Financing Package - 5 3/4%, 25 years				
- EDA Mortgage, 65%	5,158,550	197,750	3,771,080	9,127,380
- Commercial Bank mortgage, 25%	1,984,060	76,050	1,450,420	3,510,530
Subtotal 90%	7,142,610	273,800	5,221,500	12,637,910
- Equity required, 10%	793,600	30,420	580,170	1,404,190
<u>Annual Cash Disbursements Based on EDA Package</u>				
Mortgage Interest and Principal	\$ 539,200	\$ 20,700	\$ 394,200	\$ 954,100
Taxes - \$5.51/\$100 @ 40%	175,000	6,700	127,900	309,600
Insurance	3,000	2,500	10,400	15,900
Operating and Maintenance	200,000	30,000	234,000	464,000
Management	50,000	10,000	25,000	85,000
Total Cash Disbursements	\$ 967,200	\$ 69,900	\$ 791,500	\$ 1,828,600
Gross Annual Rentals Required to Cover Cash Outflow ³	\$ 967,200	\$ 69,900	\$ 791,500	\$ 1,828,600

- NOTES: 1. Individual parts do not add to the stated total because the parking ramp is excluded and the parking area of 184,500 sq. ft. is already included with the rentable levels.
2. Includes cost of land and off-site improvements.
3. Annual rentals show only a break-even points, with no allowance for cash flow return on investor's equity. This is realistic in these projections because per square foot rentals required for just a break-even are far in excess of competitive rates.

EXHIBIT E4
 PROTOTYPE BUILDING TWO
 TRUCK AND RAIL
 PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Building Cost - 506,700 sq. feet @ \$13.28	\$6,729,210
Architects, Engineers, other fees - 8% of building cost	538,000
Interest, insurance, other construction costs - 4% of building cost	269,000
Management Administration	200,000
Contingency - 3% of building costs	200,000
Total Project Cost	<u>\$7,936,210</u>

<u>Financing and Equity Alternatives</u>	<u>Conventional Bank Mortgage</u>	<u>EDA Package</u>
1. Commercial Bank - 7 1/4% 20 years	\$5,952,150	
Equity Required	1,984,060	
2. EDA Package - 5 3/4%, 25 years		
EDA Portion		\$5,158,550
Commercial bank portion		<u>1,984,060</u>
Subtotal		\$7,142,610
Equity Required	.	\$ 793,600

<u>Annual Disbursements</u>		<u>EDA Financing</u>
Mortgage interest and principal	\$ 564,550	\$ 539,200
Taxes - \$5.51/\$100 @ 40%	175,000	175,000
Insurance	3,000	3,000
Operating and maintenance	200,000	200,000
Management	50,000	50,000
Total Disbursements	<u>\$ 992,550</u>	<u>\$ 967,200¹</u>

¹ This annual cost will add \$3.17/sq. foot to rental rates for rentable levels, excluding parking.

EXHIBIT E5
 PROTOTYPE BUILDING TWO
 ROOF TOP PARKING
 PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Land-air rights, lease, etc.	-0-
Building cost - 184,500 sq. feet @ \$1.40	\$ 259,220
Architects, Engineers, other fees - 8% of building cost	21,000
Interest, insurance, other construction costs - 4% of building cost	10,000
Management, administration	6,000
Contingency - 3% of building cost	8,000
Total Project Cost	<u>\$ 304,220¹</u>

Financing and Equity Alternatives

		<u>Conventional Bank Mortgage</u>	<u>EDA Package</u>
1. Commercial Bank - 7 - 1/4%			
20 years	75%	\$ 228,170	
Equity required	25%	76,050	
2. EDA Package - 5 3/4%, 25 years			
EDA Portion	65%		\$ 197,750
Commercial bank portion	25%		76,050
Subtotal	90%		\$ 273,800
Equity required	10%		30,420

Annual Disbursements

Mortgage interest and principal	\$ 21,600	\$ 20,700
Taxes - \$5.51/\$100 @ 40%	6,700	6,700
Insurance	2,500	2,500
Operating, maintenance	30,000	30,000
Management	10,000	10,000
Total Disbursements	<u>\$ 70,800</u>	<u>\$ 69,900^{2,3}</u>

¹ Average project cost per car space = \$650 (\$304,220 ÷ 470)

² \$69,900 ÷ 470 cars = \$148/car space/year = \$12.33/month or \$.60/week day

³ This annual cost will add \$.23/sq. foot to rental rates for rentable levels, excluding parking

EXHIBIT E6
 PROTOTYPE BUILDING TWO
 RENTABLE LEVELS (EXCLUDING PARKING)
 PRO FORMA COSTS, FINANCING AND CASH DISBURSEMENTS

Project Cost

Land-air rights, lease, etc.	-0-
Building cost - 331,200 sq. feet @ \$14.93	\$4,943,670
Architects, Engineers, other fees - 8% of building cost	395,000
Interest, insurance, other construction costs - 4% of building costs	198,000
Management and administration	65,000
Broker fees (start up cost)	50,000
Contingency - 3% of building cost	150,000
Total Project Cost	<u>\$5,801,670</u>

<u>Financing and Equity Alternatives</u>	<u>Conventional Bank Mortgage</u>	<u>EDA Package</u>
1. Commercial Bank - 7-1/4% 20 years, 75%	\$4,351,250	
Equity required 25%	1,450,420	
2. EDA Package - 5 3/4%, 25 years		
EDA Portion 65%		\$3,771,080
Commercial Bank Portion 25%		<u>1,450,420</u>
Subtotal 90%		\$5,221,500
Equity Required 10%		\$ 580,170

Annual Disbursements

Mortgage interest and principle	\$ 412,780	\$ 394,200
Taxes - \$5.51/\$100 @ 40%	127,900	127,900
Insurance	10,400	10,400
Operating and maintenance	234,000	234,000
Management	25,000	25,000
Total Disbursements	<u>\$ 810,000</u>	<u>\$ 791,500¹</u>

¹ Building rentals for rentable levels excluding parking will have to average \$2.59/sq. foot per year to cover costs and mortgage payments, plus \$3.17/sq. foot for Truck and Rail and \$.23/sq. foot for Roof Top Parking.

EXHIBIT E7
 PROTOTYPE BUILDING TWO
 PRO FORMA PROFIT AND LOSS ANALYSIS
 EDA FINANCING PACKAGE ONLY

	Truck and Rail	Rooftop Parking	Rentable Levels (Ex. Car Parking)	Total
Gross Annual Rentals to Cover Cash Disbursements	\$ 967,200	\$ 69,900	\$ 791,500	\$1,828,600
Operating Expenses				
Taxes	\$ 175,000	\$ 6,700	\$ 127,900	\$ 309,600
Insurance	3,000	2,500	10,400	15,900
Operating and maintenance	200,000	30,000	234,000	464,000
Management	50,000	10,000	25,000	85,000
Total Operating Expenses	\$ 428,000	\$ 49,200	\$ 397,300	\$ 874,500
Operating Income	\$ 539,200	\$ 20,700	\$ 394,200	\$ 954,100
Other Expenses				
Interest-average of first five, years @ 5 3/4%, 25 years ¹	390,780	15,020	285,640	691,440
Depreciation-double declining, 45 year life average of first five years ²	322,730	12,370	235,930	571,030
Total Other Expenses	\$ 713,510	\$ 27,390	\$ 521,570	\$1,262,470
Net Income (Loss) Before Taxes	<u>\$ (174,310)</u>	<u>\$ (6,690)</u>	<u>\$ (127,370)</u>	<u>\$ (308,370)</u>
Add: Average depreciation first five years	\$ 322,730	\$ 12,370	\$ 235,930	\$ 571,030
Deduct: Average Principal ¹ Payment, first five years	148,420	5,680	108,560	262,660
Net Annual Cash Flow	<u>\$ -0-</u>	<u>\$ -0-</u>	<u>\$ -0-</u>	<u>\$ -0-</u>

See next page for explanation of notes¹ and ²

EXHIBIT E7 (cont'd.)

	Truck and Rail	Rooftop Parking	Rentable Levels (Ex. Car Parking)	Total
<hr/>				
NOTE 1				
<u>Actual Interest and Principal</u>				
Year 1: Interest	\$ 407,300	\$ 15,650	\$ 297,720	\$ 720,670
Year 1: Principal	131,900	5,050	96,480	233,430
Year 2: Interest	399,510	15,350	292,030	706,890
Year 2: Principal	139,690	5,350	102,170	247,210
Year 3: Interest	391,270	15,030	286,000	692,300
Year 3: Principal	147,930	5,670	108,200	261,800
Year 4: Interest	382,530	14,700	279,600	676,830
Year 4: Principal	156,670	6,000	114,600	277,270
Year 5: Interest	373,280	14,350	272,850	660,480
Year 5: Principal	165,920	6,350	121,350	293,620

NOTE 2

<u>Actual Depreciation</u>				
Year 1	\$ 352,720	\$ 13,520	\$ 257,850	\$ 624,090
Year 2	337,040	12,920	246,390	596,350
Year 3	322,060	12,350	235,440	569,850
Year 4	307,750	11,800	224,980	544,530
Year 5	294,070	11,280	214,980	520,330

EXHIBIT E8
 PROTOTYPE BUILDING TWO
 CALCULATION OF AVERAGE INTEREST AND PRINCIPAL-FIRST FIVE YEARS
 EDA FINANCING PACKAGE ONLY
 5 3/4% FOR 25 YEARS

	Truck and Rail	Rooftop Parking	Rentable Levels (Ex. car Parking)	Total
Annual Total: Monthly payments of Interest and Principal	<u>\$ 539,200</u>	<u>\$ 20,700</u>	<u>\$ 394,200</u>	<u>\$ 954,100</u>
First Five Year's Calculation: Amount Financed (90%)	\$7,142,610	\$ 273,800	\$5,221,500	\$12,637,910
Monthly Payment-Interest and Principal (.006291064 x Original Loan)	44,930	1,720	32,850	79,500
Less: Interest in 1st Month (.00479166 x Original Loan)	34,225	1,310	25,020	60,555
Principal Repaid in 1st month	<u>\$ 10,705</u>	<u>\$ 410</u>	<u>\$ 7,830</u>	<u>\$ 18,945</u>
Total Payments in Five Years (5 x Annual Total)	<u>\$2,696,000</u>	<u>\$ 103,500</u>	<u>\$1,971,000</u>	<u>\$ 4,770,500</u>
Principal Paid in Five Years (69.3236021211 x 1st month's Principal)	\$ 742,110	\$ 28,420	\$ 542,800	\$ 1,313,330
Interest Paid in Five Years (Total Paid-Principal Paid)	\$1,953,890	\$ 75,080	\$1,428,200	\$ 3,457,170
Average Annual Interest (Total Interest ÷ 5)	<u>\$ 390,780</u>	<u>\$ 15,020</u>	<u>\$ 285,640</u>	<u>\$ 691,440</u>
Average Annual Principal (Total Principal ÷ 5)	<u>\$ 148,420</u>	<u>\$ 5,680</u>	<u>\$ 108,560</u>	<u>\$ 262,660</u>
Annual Total - Average Interest and Average Principal	<u>\$ 539,200</u>	<u>\$ 20,700</u>	<u>\$ 394,200</u>	<u>\$ 954,100</u>

EXHIBIT E9
 PROTOTYPE BUILDING TWO
 PRO FORMA DEPRECIATION-DOUBLE DECLINING BALANCE FOR FIRST FIVE YEARS
 EDA FINANCING PACKAGE ONLY

	Truck and Rail	Rooftop Parking	Rentable Levels (Ex. Car Parking)	Total
Project Cost:				
Beginning Balance ¹	\$7,936,210	\$304,220	\$5,801,670	\$14,042,100
Depreciation-Double Declining				
1st year	\$ 352,720	\$ 13,520	\$ 257,850	\$ 624,090
Book Value	7,583,490	290,700	5,543,820	13,418,010
2nd year	337,040	12,920	246,390	596,350
Book Value	7,246,450	277,780	5,297,430	12,821,660
3rd year	322,060	12,350	235,440	569,850
Book Value	6,924,390	265,430	5,061,990	12,251,810
4th year	307,750	11,800	224,980	544,530
Book Value	6,616,640	253,630	4,837,010	11,707,280
5th year	294,070	11,280	214,980	520,330
Book Value	6,322,570	242,350	4,622,030	11,186,950
Total Depreciation	\$1,613,640	\$ 61,870	\$1,179,640	\$ 2,855,150
Five-Year Average	\$ 322,730	\$ 12,370	\$ 235,930	\$ 571,030

NOTE: ¹ Includes costs of building, architects, engineers, construction insurance and financing, management and contingency; excludes land cost of \$390,560 which would not be depreciable.

EXHIBIT E10
PROTOTYPE BUILDING TWO
EFFECT OF LAND VALUE WRITE-UP

Project Costs

Land (Cost \$1.25/square foot)	\$ 390,560
Truck and Rail	7,936,210
Rooftop Parking	304,220
Rentable Levels (excluding parking)	5,801,670
TOTAL	<u>\$14,432,660</u>

EDA Financing: 90% of Appraisal
@ 5-3/4% for 25 Years

Land (appraisal @ \$2.50/square foot)	\$ 703,010
Truck and Rail	7,142,610
Rooftop Parking	273,800
Rentable Levels (excluding parking)	5,221,500
TOTAL	<u>\$13,340,920</u>

Equity Required

\$ 1,091,740

Per Cent of Total Cost
10% ROI

7.6%
109,200

Required Annual Cash Flow

Original Break-Even Cash Requirement	\$ 1,828,600
Add: Annual Land Financing	53,070
Real Estate Taxes on New Valuation	17,200
10% Return on Total Equity	109,200
TOTAL	<u>\$ 2,008,070</u>

Rental Rate @ 100% occupancy	\$6.58
Rental Rate @ 95% occupancy	6.93

EXHIBIT E11
 PROTOTYPE BUILDING TWO
 PRO FORMA SUMMARY OF ANNUAL TAX REVENUES FOR CITY

Real Estate

Total tax: \$5.51/\$100 @ 40%

City Portion:

School and Library	\$2.60 or 47.2%
other City purposes	<u>1.99 or 36.1%</u>
TOTAL	\$4.59 or 83.3%

Estimated Real Estate Taxes:

Land (value of \$390,560)	= \$ 8,600
Building (value of \$14,042,100)	<u>= 309,600</u>
Total Real Estate Tax	= \$318,200

City Portion:

School and Library	@ 47.2% = \$150,190
Other City Purposes	<u>@ 36.1% = 114,870</u>
TOTAL	@ 83.3% = \$265,060

City Income Tax

Estimated Average Annual Wage	\$ 8,700
Estimated Number of Employees	750
Estimated Annual Total Gross Pay	\$6,500,000
Estimated City Tax Revenues @ 1% \$ 65,000

Personal Property Tax

In the City of Cleveland General Fund between 1965 and 1968 (Est.), intangible tax receipts have varied from 0.1% to almost 0.6% of real property tax receipts. Intangible tax receipts have grown substantially each year. For the next five years, they will probably conservatively average between .6% and 1.0% of real property tax receipts:

\$318,200 x 0.8% =	<u>\$ 2,540</u>
Total Estimated Annual Tax Revenues for City =	<u><u>\$332,600</u></u>

The original work program did not provide for a market test of Prototype Two, since the design already reflected the impact of food industry interviewees. However, the revised design was tested with representatives of the City Administration, private developers, and quasi-public bodies to evaluate the support for the project from these sectors of the community. In cases where persons were seeing the project for the first time, the presentation included the project background, a brief description of Prototype One and a detailed description of Prototype Two through the use of a model, building drawings and maps. Persons already acquainted with the project were given a presentation of Building Two only.

CITY GOVERNMENT

Various members of the City Administration reviewed the design of Prototype Two and the financial picture. They agreed that the project would require some sort of subsidy since the rent is beyond the range of potential food industry tenants. The City indicated a willingness to hold the project site open for private implementation, but did not indicate how long this could be done.

It was pointed out that this project should consider the expansion and space needs of the Northern Ohio Food Terminal and the 40th Street Merchants.

There was also some discussion about possible tenants. It was recommended that a mix of several industrial uses should be considered, since the food industry may not be a large enough market for this building. This would provide more flexibility by opening up the rental market to a wider group of industries.

The possibilities for and implications of government financing were explored. It was pointed out that the City has to apply to qualify for E.D.A. funds. This application was made during the course of this project and has been substantially approved.

PRIVATE DEVELOPERS

Several discussions were held with a private industrial developer who has interests in Cleveland and suburban areas, including several multi-level buildings. He recognized the economic and social benefits which would accrue to the City from a high density development in Gladstone. However, he stated that for this project to be financially

profitable to a private developer, some degree of government financial aid would be required in the form of public improvements, rent subsidies, low interest loans or other assistance. He pointed out several areas in which he believed this project is not in step with current industrial construction and leasing practices.

- The general practice is to lease space on the basis of gross area with the tenant paying for all improvements and utilities.
- His opinion was that the allowance for building operating and maintenance was high. Generally, the tenant maintains his own area and the building owner is responsible only for the exterior finish and roof of a multi-level building.
- He felt that the truck docking area need not be enclosed; that this represents an additional cost for a service which tenants do not require. He suggested the possibility of using adjustable dock shelters which would provide cover and be less costly.
- For internal material handling, he recommended the investigation of a vertical conveyor system, which he thought would be less costly and more flexible than elevators.
- He was of the opinion that the provisions for heating and ventilating systems could be less complex, possibly using unit space heaters. It is each tenant's responsibility to provide any heating and ventilating he requires over and above that which is provided and to provide any special mechanical systems he needs.
- He estimates his construction costs at \$8.00 to \$10.00 per square foot for a new single level industrial facility, since his company does its own construction work.

Based on his experience, this developer feels there is a market for industrial space in the inner city provided the rent is competitive. He estimated the rental market at \$.75 to \$1.00 for existing facilities. He points out that tenants will generally rent space which is available even though it does not conform to their specific requirements; they are willing to adapt to the building so long as the rent is in a range they can afford. Further, the accepted practice is for the tenants to make the necessary improvements and pay for all utilities, maintenance and repairs in his own area.

Another private developer who is active in the food industry pointed out the need for a new cold storage facility in Cleveland. He sees a potential market among supermarket owners as

well as Gladstone area operations. This substantiated a finding of the market test in which interviewees stated that a central cold storage facility would be of value in Gladstone. His estimate is that initially a facility of 100,000 to 200,000 square feet should be anticipated for cold storage. He points out that this is essentially a warehouse operation which would not be a major employer in its own right. However, he believes this might serve as a major tenant in a multi-level facility and attract other tenants to the building and possibly draw new firms to the area. He showed a willingness to pursue this development further and get information on cold storage operations in other cities.

HOUGH AREA DEVELOPMENT CORPORATION (H.A.D.C.)

This organization was formed in 1967 and is comprised of members of Cleveland's Negro community. Its main objective is to encourage economic development in and by the black community by providing investment capital and business planning assistance. H.A.D.C. has received a grant of \$1.5 million from the Office of Economic Opportunity to finance its activities.

The possibility of participation by H.A.D.C. in this multi-level industrial building project was discussed in several meetings between this firm and H.A.D.C. representatives.

H.A.D.C. sees its role as organizing and providing risk capital for black owned businesses which would be tenants for this multi-level building. The automotive industry has been suggested as a logical tenant-industry based on the following factors:

- Cleveland is already a center for automobile parts and assembly plants.
- The automobile industry has a history of providing assistance to black-owned businesses.
- There is a wide range of sub-industries which could be housed in a multi-level building including the manufacture of relatively small products (e.g. radios, motors) which can be accommodated in a vertical material handling system.

H.A.D.C. has already committed some of its funds and efforts to projects which are in progress including a shopping center, building construction firms, and public housing projects. It is premature at this point for H.A.D.C. to commit itself to this project. However, the possibility of coordination between H.A.D.C. (or a similar group), the federal government, city government and private industry presents a possible avenue for exploration.

APPENDIX 5

PROTOTYPE BUILDING THREE

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SECTION A - BUILDING PROGRAM AND DESIGN

SECTION B - FINANCIAL ANALYSIS

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APPENDIX 5 - SECTION A

The original intent of the design modification studies was to determine whether the previously designed Prototype Two facility could be adapted or modified to house firms within the automotive industry or a food cold storage facility. The possibilities of both of these uses had been identified through contact with private developers and Hough Area Development Corporation. As work progressed, it became apparent that a broad public purpose must be served by this prototype facility in order to justify the expenditure of public funds.

- The tenant market would have to be larger than one industry or one group in order to get the number of tenants needed for this building.
- The scale of the building would have to be enlarged in order to achieve the desired high building efficiency while still providing the necessary truck docking space.
- The specific areas of public expenditure should be clearly identified in a so-called "public street", which could then be used by all building tenants.

Because of these factors, it became necessary to design a completely different prototype facility. The building program is general in its criteria, since the tenants would cover a range of industrial functions. The program criteria are summarized below along with the design solution.

The relationship with existing adjacent businesses has been of special importance. The Gladstone Urban Renewal Plan calls for eventual displacement of the 40th Street Merchants. This group of food distributors is presently located on the east side of 40th Street (or the western boundary of the study site). In keeping with Urban Renewal requirements, relocation provisions must be made for them. It is anticipated that this particular group might become tenants in Prototype Three.

Their business practices make it necessary for them to be located in proximity to the Northern Ohio Food Terminal, because customers do shop for competitive prices and there is inter-buying among food distributors and merchants. This would make it desirable for this group to remain as close to their present location as possible, with easy access between Prototype Three and the Food Terminal.

The occupants of the Food Terminal are primarily engaged in food processing and distribution operations. They have a present need for truck holding and automobile parking facilities, since the present provisions are inadequate. A key factor in this Prototype Three complex

has been to establish that automobile parking and truck holding areas should be part of the publicly financed "street" and should serve the Prototype, the Food Terminal, and others in the area. This is based on the belief that the City must provide this type of facility to attract industrial firms to central city sites. It is also based on the belief that a provision for truck holding and automobile parking could be a key factor in stimulating the entire Gladstone renewal program. The long run importance of providing these facilities has been given major weight in developing the site plan and the off-site improvements.

GENERAL PLANNING REQUIREMENTS

The general planning data and analysis which was developed for Prototype One (see Appendix 2, Section F) remains valid, since the same site is involved. This had involved a thorough investigation of existing characteristics of the site and surrounding area. This permits development of programs of land use functions, linkages, land acquisition and thoroughfare planning within a realistic framework.

- Evaluation of relationship with the surrounding area (see Chapter 5, Exhibit E1).
 - a. Pedestrian linkage: Prototype Three is located on the eastern portion of the site. Major pedestrian access to the building would be from Woodland Avenue to relate to bus stops, car drop-offs and public housing across the street; secondary entrances are located at various points around the building. A separate commercial building is proposed for the southwest and southeast corners of East 40th Street and Woodland Avenues. This would have its major access on Woodland Avenue. A pedestrian bridge and tunnel would connect the two segments of this facility.
 - b. Adjacent land uses and buildings: The Prototype Building would have four levels above grade and one below grade. The parking structure would have eight levels above grade and two below grade, but its height would be equivalent to that of Prototype Three. Both structures would fit in with surrounding two and three level buildings.
- Evaluation of vehicular circulation for the site and surrounding area (see Chapter 5, Exhibit E1).
 - a. East 40th Street would remain as a major north-south artery for the area with two way traffic. It is recommended that part of this street be depressed so that through traffic would move below grade. A bridge, at grade, would span East 40th Street. This bridge would provide access from the truck holding

area to the Food Terminal area for trucks serving the Food Terminal.

- b. It is anticipated that the major flow of truck traffic would be eastward along Woodland Avenue, from the I-77 interchange located about one half mile west of the site. To keep this traffic moving smoothly, it is recommended that the street be widened by the addition of a turning lane on the south side of Woodland Avenue. This would allow trucks to turn into the north-south access road that runs through the site and cars to turn into the parking structure, without causing congestion.
- c. An access road runs through the site, south from Woodland Avenue. Its primary function is on-site circulation for trucks. However, it could also serve to link existing operations south of Prototype Three with Woodland Avenue.

PHYSICAL SITE REQUIREMENTS

The site requirements are functionally and visually part of the general planning requirements and are related to the surrounding area. The objective is that each foot of urban land is designated for a specific functional use such as construction, parking, circulation, or landscaping. Through investigation and analysis of the relationship of these activities, the site plan creates a proper balance of land use for a pleasing environment as well as a workable blending of functional activities.

Certain general concepts, as identified in Appendix 2, Section F, have been applied to Prototype Three, as they were to the two prior studies. However, modifications were necessary because of the new building program, new tenant group, and the emphasis placed on public use.

- Staging system: Since the proposed facility utilizes the entire site, it has not been necessary to define further stages of development for this site. It is recognized that market needs, financing restrictions, and other developer considerations may place limitations on how much of Prototype Three can be constructed at one time. Therefore, a plan for staged development has been outlined in Chapter 5. It must be noted that if this is followed, the costs, space ratios and other factors would not agree with those set forth in the financial analysis, since these are based on construction of the entire facility.

- Identification of functions to be performed on the site: The functions should be in balance with each other so that the site functions properly. The area within the site devoted to each function should be adequate to meet tenant needs, and located to insure maximum efficiency, with the proper degree of inter-connection so that the entire facility functions as a whole without one function interfering with another.
 - a. Industrial: This would be the space occupied by the tenants. The industrial uses would involve processing and distribution functions. These would be located in the multi-level prototype facility.
 - b. Commercial and office: A building to house commercial and office operations is felt to be an essential part of this total complex. This could be for retail stores, restaurant, bank and similar operations to serve the entire area. In addition, office space could be used by firms having their production facilities in the prototype as well as by other businesses. It is believed that a commercial-office facility would be economically feasible as a completely private development. Therefore, it has not been taken into consideration in the financial analysis nor have design studies been performed. However, it has been considered as part of this site plan, because of its importance to the development of the entire area. It is suggested that a commercial facility be located on the southeast and southwest corners of the intersection of East 40th Street and Woodland Avenue. This would allow it to relate to other commercial development along Woodland Avenue, and to serve the residents in the housing across Woodland. It would also be adjacent to the automobile parking garage with direct access from one structure to the other.
 - c. Automobile parking: This is provided in a separate structure. It is centrally located to serve tenants of Prototype Three, the Food Terminal and the suggested commercial building. The garage would have a capacity of 2188 cars, and have ten levels.
 - d. Truck holding: This area is situated on the western portion of the site to serve Prototype Three and the Food Terminal. This area forms the east-west linkage, at grade through the site as well as providing the truck holding space. If the need to expand this holding area should arise in the future, there is land to the south which could be added. The incorporation of this large holding area into the site plan will alleviate congestion which now exists on Woodland Avenue and secondary streets.

- e. Truck docking: This area forms the central building core of Prototype Three so as to be easily and immediately accessible to building tenants.
- f. Rail: A spur track would be brought from the team tracks and would run along the east side of Prototype Three in an existing right-of-way, so as not to interfere with truck and automobile traffic.

Adequate circulation system: The on-site circulation is especially important because of the large truck holding area and the truck traffic moving through the site. Separate entrances and exits are provided for cars and trucks, and they are kept separate on the site as well.

- a. Trucks enter from Woodland Avenue onto the access road. From this, they will be able to go directly into Prototype Three or into the truck holding area. From the holding area, trucks can proceed to the Northern Ohio Food Terminal or into Prototype Three. Trucks will be routed by a central control station located at the truck entrance to the site. Their routing will depend on their destination and the availability of docking spaces. Trucks will have access to Prototype Three at sublevel one, level one and level two. Trucks would also exit onto Woodland Avenue.
- b. The major automobile entrance to the parking structure would be from Woodland Avenue and the major exit would be onto East 40th Street. Both of these are at grade level. In addition, there is a secondary entrance-exit point to sublevel one from 40th Street.
- c. Pedestrian linkage between the parking garage and Prototype Three is provided at sublevel one, level one and level two. There would be access at all levels of the commercial structure from the parking garage.

Zoning and urban renewal standards: One of the basic objectives for this project has been to seek out ways to make more efficient use of urban industrial land. This building concept was not contemplated by the Gladstone Urban Renewal Plan. The set-back and building coverage requirements have not been strictly adhered to because of the need to test this concept in a manner which was not restricted. Building coverage of the site at grade is over 80%. However, it should be noted that about one-third of the site is used for truck holding. While this is partly on structure, it is not a closed building and its height is only 24 feet above grade.

The unique characteristics of this building concept coupled with the need to get optimum use from a given piece of land have resulted in these variances from these two code requirements:

- Adequate utilities: The utilities serving the site, including gas, water and electricity, have been determined to be adequate to meet the building's needs.
- Safety and security: In order to insure the safety of the tenants, the following features have been provided:
 - a. Controlled building entrances.
 - b. Central building security.
 - c. Enclosed and controlled car parking.
 - d. Controlled truck docking.
 - e. Controlled train docking.
 - f. Controlled truck holding and parking.
- Pleasing aesthetic form: The facility has been designed so as to have a form which is sympathetic to its surroundings and presents a visual image that is representative of its use.

BUILDING DESCRIPTION

The prototype facility consists of four major areas which can generally be described as follows:

There is one level below grade and four above grade. The truck docks form the central building core of the building at sublevel one, level one and level two. The central building core also contains vertical shafts which house utility risers, freight and passenger elevators for the building.

This arrangement is the result of tenant and developer considerations. From the development point of view, the central core of this building is the portion of the building which would be built with government funds. It is a public area in the sense that these are facilities which would be available to all tenants. The concept was that with this central building core consisting of truck docks, utility risers and elevators, one or more developers could build industrial space which attaches onto this core.

From the tenant's point of view, it has been assumed that sublevel one and level one would be used by tenants who have high service requirements or handle bulky goods. This would give these tenants the immediate control over truck scheduling which they require and provide for a minimum amount of transfer of materials. Additional dock space is provided at level one on the west side of the building, giving tenants in that area truck docks on two sides. It is anticipated that the 40th Street Merchants could be relocated in this area. The truck docks at level two would serve tenants on levels two, three and four. It is anticipated that these tenants would be more production oriented, with lesser truck docking requirements.

Another concept behind this building is that each level is essentially like a suburban industrial park. In these situations, typically, the city supplies the utilities, and truck docks are immediately accessible to the industrial production areas. Prototype Three seeks to simulate these conditions as closely as possible. The size of each level makes it possible for a relatively large processing operation to occupy as much space as it needs in conditions similar to those available in a new suburban industrial development.

The truck holding area and the parking structure are structurally separate from Prototype Three because they serve more than the one building. However, they are an integral part of this entire development.

PHYSICAL BUILDING REQUIREMENTS

While the major elements of this complex are functionally interrelated and interdependent, they are separate structures with somewhat different programming requirements. Each structure is described below as a separate unit with the interrelationships pointed out where appropriate.

It is appropriate to note that a basic assumption has been made regarding the building density. The number of employees in the prototype has been estimated on the basis of 500 square feet of space per employee. The density is less than either Prototype One or Two, because of the addition of warehousing as tenant use. As will be seen below, this figure is the basis for decisions as to certain facilities.

AUTOMOBILE PARKING

Off-street parking is provided in a 10-level parking structure. Sub-levels 1 and 1A are below Woodland Avenue grade, level 1 at grade and levels 2 through 10 above grade. The above-grade levels are open on the exterior walls to provide fresh air ventilation. The sublevels, being underground and enclosed, are mechanically ventilated and have a dry-type sprinkler system for fire protection. An alarm system of warning horns serves this area. The garage is concrete construction and has a capacity of 2188 cars. This capacity is based on these criteria:

- The Food Terminal has a present need for about 700 or more parking spaces to accommodate its tenants.
- The Gladstone Urban Renewal Plan, as revised in the 1968 Ammendatory, sets forth the following requirements for off-street parking which are relevant to this project:

Warehouses	One for each employee per maximum shift or total parking area equivalent to 10 per cent of the gross floor area, whichever is greater.
Other industrial uses	One for each three employees per maximum shift or total parking area equivalent to 25 per cent of the gross floor area, whichever is greater.

Because the exact mix of tenants is unknown, a middle ground has been taken of approximately one space for every two employees or 1500 spaces. It is also pointed out that this amounts to approximately 465,000 square feet. Application of the standard of 25% of the gross floor area would call for 453,325 square feet of parking space. Thus, the planned facility is in keeping with the more stringent off-street parking requirements that apply to the facility.

The total number of parking spaces recognizes that there is a present need for parking and this will increase as the area develops. It also assumes that the commercial facility proposed as part of the site would be served by this parking garage. It is believed that the capacity provided will help serve the needs of the area, but it is also recognized that additional parking provisions may be needed in other parts of the Gladstone area.

Other specific data for the parking structure can be summarized as follows:

- Floor load bearing capacity - 75 lbs./sq. ft.
- Bay size - 20'0" x 60'0".
- Ceiling height - minimum clearance 8'0".
- Floor to floor height 10'-0".
- Materials and finishes.
 - a. Floor - concrete with hardener.
 - b. Walls and columns - exposed concrete.
 - c. Painted and electrified traffic control.
- Exterior walls - concrete frame with masonry spandrel.
- Passenger elevators - the garage is served by four passenger elevators which stop at each floor.
 - a. Cab capacity - 4000 lbs.
 - b. Door size - 3'6" x 7'0".
 - c. Travel speed - 350 feet per minute.
- Lighting: building owner supplies all required lighting.

HOLDING AREA

The holding area has a capacity for 186 trucks. This number was determined by an estimate of the service requirements of Prototype Three and the Food Terminal as well as the physical limitations of the amount of land available.

At one extreme, it would be least costly to put the holding area on grade; but this would also be the most inefficient use of land. At the other extreme, it would be most costly to stack holding on a multi-level structure, but this would be the most efficient use of land. A middle route was sought between these two extremes by putting the holding area on ramps which serve for both truck circulation and holding. A construction cost savings is realized by putting each slab at an incline so that it can serve for both circulation and holding, as compared with a deck-like structure where each story is level and ramps are needed for circulation. In addition to the cost factor, it was determined that this type of facility would

serve the Food Terminal and Prototype Three more efficiently and easily.

The holding area consists of three slabs --- one at grade, one inclined down and one inclined upward. The slab at grade level provides circulation across the site in an east-west direction and would hold trucks which are destined for the Food Terminal or Prototype Three. The slab which is ramped down provides circulation into sublevel 1 and holding space. The slab which is inclined up provides circulation up to level 2 and would hold trucks which will serve the upper levels of the prototype.

Other specific data for the holding area can be summarized as follows:

- Floor load bearing capacity: 250 lbs./sq. ft.
- Bay sizes: 30'0" x 30'0" in holding space area
30'0" x 60'0" in circulation and maneuvering areas
- Ceiling height: minimum 14'6" clearance, adequate for tractor trailer trucks
- Floor-to-floor height: 20'0"
- Materials and finishes: poured concrete slab with masonry spandrel
- Lighting: building owner supplies all required lighting

PROTOTYPE BUILDING THREE

Because of the more broadly defined potential tenant market, the building program recognizes that the detailed requirements of each tenant would differ, and are unknown. Therefore, the building has to provide flexibility to enable the tenants to achieve their unique requirements. Following are the factors which have been considered.

- General requirements
 - a. Adequate space for the uses: The amount of industrial space was based on providing a large expanse of usable space for one or more tenants on each level and balancing this with the other uses on the site. From this, the amount of space required for the supporting functions such as material handling, truck maneuvering and docking, and train docking was determined.

- b. Satisfactory relationship of the elements: The facility is designed so that all of the elements work well independently and together with adequate circulation to connect all of the related spaces.
 - (1) Vertical pedestrian core interconnects industrial, office, and truck areas.
 - (2) Vertical material handling core interconnects industrial, truck and train areas.

Specific requirements:

- a. Flexibility and universality: Within each functional area of the building, the space should be uniform and adequate in design so as to meet the needs of potential tenants or uses of the area.
 - (1) Adaptable to various sizes of tenants or uses:
 - (a) Industrial space: Each of the typical processing floors has a total rentable area of 343,000 to 369,000 square feet. A tenant can rent any amount of space from 1,000 sq. ft. up to one complete floor. Building efficiency would decrease if there are a larger number of tenants per floor because of the need to provide corridors and other elements of circulation.
 - (b) Office space: An allowance has been made in the building cost for 5% of a tenant's space to be provided as office space. The improvements would be made to the tenant's specifications, within the limits of the allowance, including air conditioning.
 - (c) Truck facilities: Truck docks are provided in the central building core on sublevel 1, level 1 and level 2. Each dock level is directly accessible from the adjacent production area and holding area, but there is no internal truck circulation between levels of the building. The general concept behind the truck docking system has been to provide sufficient flexibility within the building to meet a variety of tenant requirements.

This can best be summarized by describing each level of the dock area.

- 1) Sublevel 1: There are 51 docks in the central core of this level. It has been assumed tenants' uses would involve handling or production of bulky materials (e.g. food cold storage, general warehousing, industrial processing). The ratio of docks to rentable space on this level is one dock for every 6700 square feet of space. Based on this, it is suggested that each tenant be assigned his own docks, adjacent to his industrial area, for his exclusive use. The tenant would have control over scheduling the use of these docks. Trucks delivering to these tenants would enter the site and be directed either to the holding area or directly to a dock on sublevel 1.
- 2) Level 1: The assumption has been that the tenants on this floor would also require flexible scheduling and direct access to truck docks, because of handling bulky goods or service requirements. One specific tenant group anticipated for this floor are the 40th Street Merchants and other food distribution operations. The ratio of truck docks to rentable space for this level is one dock for every 3200 square feet of space. There are 51 docks in the central core to serve the tenants on level 1. Additional docks for 49 small trucks at grade along the outer western side of the building give truck access on two sides, and provides for tenants with exceptionally high service requirements. Each would have his own docks adjacent to his production area and would control the scheduling of their use. Trucks serving those tenants would enter the site and be directed to either the holding area or a dock, at the tenant's discretion.
- 3) Level 2: Tenants who sell or manufacture a small product and whose truck pick-up and deliveries can be easily

scheduled would be located on levels 2, 3 and 4. The 51 truck docks on level 2 would be for their common use with scheduling handled by a central management service. In contrast with the lower levels, the ratio of docks to rentable space is one dock for every 21,200 square feet. Trucks serving these floors would be directed to the holding area and, from there, to a dock.

On site truck circulation would be controlled by a central management service. There would be a control station located near the site's truck entrance. A person in this station would have electronic communication with each holding and dock area and would be able to determine whether a dock is available. On sublevel 1 and level 1, the tenant would make the decision as to whether he has a dock available and tell the control station, who would coordinate this. The control station would be directly responsible for scheduling use of the docks on level 2. In any event, the truck driver would be routed directly to a truck dock, if one is available, or to a holding space.

For purposes of comparison, it is interesting to note the off-street loading criteria gathered from other sources, as they are relevant to this facility.

- 1) The 1968 Amendatory to the Gladstone Urban Renewal Plan sets forth the following requirements which are relevant to this project.

<u>Uses</u>	<u>Sq. ft. of gross floor area</u>	<u>Required berths</u>
Semi-industrial, General industrial, or Manufacturing		
	25,000 to 50,000	1
	50,000 to 80,000	2
	80,000 to 150,000	3
	Each additional 100,000	add 1

<u>Uses</u>	<u>Sq. ft. of gross floor area</u>	<u>Required berths</u>
Warehouses		
	Less than 30,000	2
	30,000 to 50,000	3
	50,000 to 100,000	4
	100,000 to 150,000	5
	Each additional 100,000	1

- 2) The Ernst & Ernst study of material handling for food processors (see Appendix 2, Section D) estimated one truck dock for every 5500 square feet of rentable space, based on the intensive requirements of this industrial group.
 - 3) An industrial developer who specializes in leasing space for warehouse uses estimates one dock for every 15,000 square feet of rentable space.
- (d) Train facilities: A railroad spur track will run along the outer eastern side of the building. There is space for docks to handle up to 18 railroad cars. The use of these docks will depend on the tenant requirements. It may be that all tenants who require rail will be located adjacent to the docks and will be the exclusive users, in which case they would pay for the dock space as part of their individual rent. Or, there may be more extensive use of the rail which would necessitate a different leasing arrangement. Because the nature and extent of use is unknown, the docks have not been indicated on the building drawings.
- (2) Adequate floor loads: Industrial areas are uniformly designed for live loads of 200 lbs. per square foot to permit all types of equipment, to provide the ability to relocate equipment to adjust production flow and to permit concentrated storage of materials. Truck dock areas have a load bearing capacity of 200 lbs. per square foot; truck maneuvering areas, 250 lbs.

- (3) Adequate and uniform bay sizes:
 - (a) In processing areas, a 30'-0" x 30'-0" bay has been selected as one which will permit flexibility for all types of tenants. The bays are large enough that columns will not restrict production flow or material storage, but still economical for the heavy floor loads that may be required. The 30'-0" x 30'-0" bay is flexible for divisions into 2, 3, 5, 6 or 10 foot modules for partition locations within the tenant space.
 - (b) In truck docking areas a 30'-0" x 30'-0" bay has been selected for the truck loading position and a 30'-0" x 60'-0" bay in the maneuvering and circulation areas.
- (4) Adequate and uniform ceiling heights: In all of the processing areas, the ceiling is high enough to facilitate the stacking of materials, placement of large equipment, and installation of overhead conveyor or chain hoists as may be needed.
 - (a) Typical industrial floors: 17'0"
 - (b) Penthouse: 15'-0" - adequate clearance for large equipment
 - (c) Truck dock: 14'6" minimum clearance
- (5) Floor to floor heights:
 - (a) Industrial levels: 20'0"
 - (b) Penthouse level: 17'-0"
 - (c) Truck dock: 20'0"
- (6) Suitable materials and finishes:
 - (a) The entire building would be constructed of poured-in-place reinforced concrete because of the heavy floor loads, needed for a fireproof structure, to minimize vibration transmission, and to minimize noise and odor transmission.
 - (b) Generally shell space is provided in each area so that each tenant will be able to provide the finishes which are most suitable to his needs.

- 1) Public spaces (lobbies)
 - a) Floor - terrazzo
 - b) Base - terrazzo
 - c) Walls - concrete, masonry (brick or structural facing tile)
 - d) Ceiling - lay-in-grid, mineral fiber panels
 - 2) Toilet rooms
 - a) Floor - ceramic tile
 - b) Base - ceramic tile
 - c) Walls - ceramic tile
 - d) Ceiling - lay-in-grid, mineral fiber panels
 - 3) Industrial space
 - a) Floor - exposed concrete
 - b) Ceiling - exposed concrete
- (c) Doors, door and window frames, and glass:
- 1) Main lobby entrance and exterior commercial window walls.
 - a) Entrance doors - aluminum frames with duranodic finish
 - b) Exterior door and window frames - aluminum with duranodic finish
 - c) Glass - clear plate
 - 2) Industrial and central core areas:
 - a) Doors - hollow metal with enamel finish
 - b) Door frames - hollow metal with enamel finish
 - c) Overhead doors connecting docks and industrial areas

- (d) Exterior walls:
 - 1) Processing levels: Poured-in-place concrete frame and masonry wall panels with operable sash
 - 2) Penthouse level: Masonry walls with aluminum louvers
- (7) Adequate toilet room facilities: Separate men's and women's toilet rooms are provided on each processing level. These toilet facilities provide only the basic building code requirements. A tenant, at his own expense, may add locker and shower rooms.
- (8) Passenger elevators: The industrial levels are served by four automatic elevators which stop at each floor, thus providing vertical circulation. The shafts which house these elevators are part of the building's central core.
 - (a) Cab capacity - 4000 lbs.
 - (b) Door size - 3'6" x 7'0"
 - (c) Travel speed - 350 feet per minute
- (9) Adequate and flexible material handling system to meet all tenant needs.
 - (a) Material handling management: Lack of specific data as to tenant mix and requirements makes it difficult to suggest a specific management system. Several alternatives are possible and the final method would have to be determined by the building owner.
 - 1) Each tenant would be responsible for his own internal vertical movement of goods, including the equipment, scheduling and personnel.
 - 2) Two or more tenants could work out a cooperative system which could include scheduling of use of elevators, purchase of equipment such as fork lift trucks, personnel.
 - 3) The building management could provide central material handling service which would schedule use of elevators, unloading of trains, internal deliveries and provide equipment and personnel.

- (b) Material handling elevators: Ten freight elevators would serve all levels of the building, thus providing for the vertical movement of goods within the building. The vertical shafts which house the elevators are part of the central building core. These elevators would serve the following uses:

- 1) Connect level 2 truck docks to tenants on levels 3 and 4.
- 2) Move goods between the train area and all levels.
- 3) Connect those tenants where inter-buying relationships are established.

There would be 2 freight elevators located in each vertical shaft of the central building core. The general specifications for these elevators are:

Platform size - 8'6" x 10'0" x 10'0" high

Capacity - 10,000 lbs.

Doors - 8'0" x 9'6"

Travel speeds - 200 f.p.m.

- (c) Special material handling equipment: This can be installed in the vertical shaft adjacent the material handling elevators for any tenant's special material handling system he may wish to install at his own expense.
- (10) Central mechanical and electrical system with adequate supply lines for all required utilities which could be extended to the individual tenant spaces as required: All major utility supply lines will run within each of the vertical shafts located in the central building core with access points at each floor. Horizontal extensions from these shafts would be made by each tenant to his own space. All of the tenant service installations must be approved by the building owner. Following are the utilities and services which are designed into the building.

- (a) Plumbing

- 1) Water: Hot and cold water service is supplied to all public toilet rooms and janitor spaces. For tenant use, there are cold water lines available at three locations on each floor. If a tenant requires water, he would provide

a valve the same size as his intended service line. This valve should be located at the tee just beyond the main shut-off valve in the shaft, so his water could be turned off without interference to other tenants. The tenant would also provide a water meter, and then he would be free to run a line as necessary to and within his space. All of this would be included in the tenant improvements.

- 2) Hot water: If a tenant requires hot water beyond the toilet room service provided by the building, he would provide an electric or gas hot water heater in his space and connect this to his own water supply.
- 3) Sanitary waste: Public toilet facilities (including lavatories) are provided on each floor. In addition, sanitary soil stacks and vents are available at five locations on each floor. The tenant may install a 'y' in these stacks to serve his fixtures.
- 4) Storm water: Storm water stacks are provided at five central cores and at other locations on each floor. The tenant may install a 'y' in these stacks to serve any floor drains he may wish to install.

(b) Industrial waste:

- 1) Fluid waste: Fluid waste risers may be installed within any of the vertical shafts as a tenant improvement.
- 2) Industrial waste: Waste is collected at five locations on each floor. Incineration of both edible and unedible garbage and dry waste is provided through this system.

- (c) Gas service: Gas service is provided at five locations on each floor. If a tenant requires gas, he should provide a valve the same size as his intended service line. This valve should be located at the tee just beyond the main shut-off valve in the shaft, so the tenant's gas can be turned off without interference to the other tenants. The tenant would also provide a gas meter, and then he may run a line as necessary to and within his space. All of this would be included in the tenant improvements.

- (d) Fire protection: The building is provided with standpipes in each one of the five central shafts and at each stairwell. Additional hose cabinets made necessary by the tenants layout, and sprinklering of tenant spaces shall be installed from tees provided in the standpipes. The installation of these additional items would be at the tenant's expense.

Break-glass alarm stations are provided on each floor, with an alarm panel located in the building maintenance office and warning bells installed throughout the building.

The dock areas are provided with a dry-type sprinkler system. An alarm system of warning horns serves these areas.

- (e) Heating, ventilating and air conditioning:

- 1) Heating: Hot water radiation heat is supplied on all five tenant levels from boilers located in the mechanical penthouse. In addition to this central system, there are two supplementary systems.

- a) Industrial space adjacent to truck docks have unit heaters at entrance doors.
- b) Truck docks are equipped with infra-red heaters.

- 2) Ventilating

- a) On all levels except sublevel one, the ventilation requirements of the industrial space are met through the use of operable sash. Industrial space in sublevel one is mechanically vented.

If a mechanical ventilation system is required due to a tenant's operation, this system shall be installed at his expense.

b) The truck docking area in sublevel one and level one is also mechanically vented. Level two truck docks are not enclosed and will therefore require no mechanical ventilation.

c) Exhaust: All public toilet rooms and janitor spaces are exhausted by separate fans and ducts provided by the owner as part of the basic building.

If process exhaust from the tenant spaces is required, this must be provided by the tenant. Such exhaust can be ducted to one of the utility shafts and thence vertically to the penthouse. Fans must be provided by the tenant.

3) Air conditioning: Each tenant will receive an allowance for 5% of his space to be air conditioned (offices). This will be done by supplying a self-contained unit to each tenant. Any additional air conditioning shall be installed by the tenant.

(f) Electricity and communications:

1) Electric power: Electric service is available at five locations on each floor. The tenant is responsible for metering, switching and fusing beyond the panel board, and for the installations of all power receptacles.

2) Emergency circuits: Emergency circuits are provided throughout the building as required by code.

3) Lighting: General lighting is provided in the public circulation areas, in the material handling areas, in the truck circulation and docking areas by the owner. Each tenant also receives an allowance from the owner for one watt per square foot of space. The tenant is responsible for the cost of installing all lighting within his space, above the allowance. All lighting fixtures must conform with the building engineering standards.

- 4) Telephone: Telephone terminal cabinets are available on each floor. Requirements beyond this point are provided at tenant expense.
- b. Expandability:
- (1) A modular structural system is designed to permit easy expansion of tenant spaces.
 - (2) A flexible leasing system using a combination of long and short-term leases would facilitate expansion of individual tenants.
- c. Economy:
- (1) The tenant space is flexible in its design and universally adaptable to industrial tenants. Thus, it has wide appeal for initial rental purposes. Tenants can expand their facilities within the building, and, if a tenant moves out, the space will not become obsolete.
 - (2) The building was designed with a minimal amount of construction in the tenant spaces to allow the tenants to provide for their individual needs. This eliminates the possibility of having spaces overdesigned for a tenant's needs.
 - (3) The building is designed to achieve maximum efficiency of rentable space by providing an efficient subdivision of the floors and providing a minimal amount of corridors and public spaces.
- d. Safety: Safety of the tenants would be provided by having a central security system.
- e. Common facilities and support facilities: The following common facilities would be provided in the building in order to economically solve some of the potential tenants' functional space requirements.
- (1) Lunch room
 - (2) Medical facilities
 - (3) Toilet facilities
- It is assumed that support facilities such as a restaurant, secretarial service, etc. would be available in the commercial facility located adjacent to this site. Therefore, space for these services is not provided within Prototype Three.

The pro forma financial analysis of Prototype Three involved a procedure similar to those used in the earlier studies. (See Appendix 3, Section A, Appendix 4, Section B.) The exhibits which follow summarize the relevant data and the notes explain how the specific procedures and assumptions were determined.

EXHIBIT E1
PROTOTYPE BUILDING THREE
SOURCE OF FUNDS SUMMARY

	Source of Funds - Note 1				Total
	EDA Loan	Local Nonprofit Organizations	Federal Grant	City Bonds	
Industrial Building					
Construction costs	\$24,111,000	\$2,679,000			\$26,790,000
Land cost	<u>387,000</u>	<u>43,000</u>			<u>430,000</u>
TOTAL	\$24,498,000	\$2,722,000			\$27,220,000
Central Building Core					
Construction costs			\$6,389,000		\$ 6,389,000
Land cost			<u>144,000</u>		<u>144,000</u>
TOTAL			\$6,533,000		\$ 6,533,000
Truck-Holding and Circulating Area					
Construction costs			\$1,719,000		\$ 1,719,000
Land cost			<u>198,000</u>		<u>198,000</u>
TOTAL			\$1,917,000		\$ 1,917,000
Car-Parking Structure					
Construction costs				\$7,836,000	\$ 7,836,000
Land cost				<u>151,000</u>	<u>151,000</u>
TOTAL				\$7,987,000	\$ 7,987,000
TOTAL	\$24,498,000	\$2,722,000	\$8,450,000	\$7,987,000	\$43,657,000

See Notes to Pro Forma Project Costs and Cash Disbursements.

EXHIBIT E2
PROTOTYPE BUILDING THREE
INDUSTRIAL BUILDING AND CENTRAL BUILDING CORE
PRO FORMA PROJECT COSTS AND CASH DISBURSEMENTS

	Industrial Building	Central Building Core	Totals
PROJECT COSTS			
Building cost - 1,745,900 square feet @ \$13.70	\$23,920,000		\$23,920,000
326,500 square feet @ \$17.47		\$5,704,000	5,704,000
Architects, engineers, and other fees - 5% of building costs	1,196,000	285,000	1,481,000
Interest, insurance, other construction costs - 4% of building costs	957,000	229,000	1,186,000
Management administration - 1% of building costs	239,000	57,000	296,000
Contingency - 2% of building costs	478,000	114,000	592,000
Total Construction Costs	<u>\$26,790,000</u>	<u>\$6,389,000</u>	<u>\$33,179,000</u>
Land Costs	<u>430,000</u>	<u>144,000</u>	<u>574,000</u>
Total Project Costs	<u>\$27,220,000</u>	<u>\$6,533,000</u>	<u>\$33,753,000</u>
ANNUAL DISBURSEMENTS			
Mortgage, interest and principal - Note 1	\$ 1,379,000	\$ -0-	\$ 1,379,000
Taxes - Note 2	682,000	164,000	846,000
Insurance - Fire and other	246,000	-0-	246,000
Operations and maintenance - Note 3	455,000	100,000	555,000
Repairs and maintenance			
Heating and ventilating system			
Other building support systems - Note 4			
Truck-holding and circulation area expense included in tenant rentals - Note 5	<u>37,000</u>	<u>-0-</u>	<u>37,000</u>
Annual Disbursements	<u>\$ 2,799,000</u>	<u>\$ 264,000</u>	<u>\$ 3,063,000</u>
Management fee - 4% of annual disbursements - Note 6	<u>112,000</u>	<u>11,000</u>	<u>123,000</u>
Total Annual Disbursements	<u>\$ 2,911,000</u>	<u>\$ 275,000</u>	<u>\$ 3,186,000</u>
Breakeven rental per square foot - Note 6			<u>\$ 1,924</u>

EXHIBIT E3
 PROTOTYPE BUILDING THREE
 TRUCK-HOLDING AND CIRCULATION AREAS
 PRO FORMA PROJECT COSTS AND CASH DISBURSEMENTS

PROJECT COSTS

Building cost - 165,600 square feet at \$9.26		\$1,535,000
Architects, engineering and other fees - 5% of building cost		77,000
Interest, insurance, other construction costs - 4% of building cost		61,000
Management administration - 1% of building cost		15,000
Contingency - 2% of building cost		31,000
	Construction Costs	<u>\$1,719,000</u>
Land cost		198,000
	Total Project Cost	<u><u>\$1,917,000</u></u>

ANNUAL DISBURSEMENTS - Note 3

Traffic handling personnel		\$ 21,000
Security personnel		20,000
Maintenance and repairs		8,000
	Total Annual Disbursement - Note 5	<u><u>\$ 49,000</u></u>

ANNUAL DISBURSEMENTS ALLOCATION - Note 5

Tenants	75%	\$ 37,000
Non-tenants	25%	12,000
	TOTAL	<u><u>\$ 49,000</u></u>

See Notes to Pro Forma Project Costs and Cash Disbursements.

NOTE #1 - MORTGAGE, INTEREST AND PRINCIPLE

The industrial building mortgage cost is based on 90% of the building construction and land costs on a level annual debt service payment basis at 4 3/4% for a 40-year period. This low cost financing is assumed to be obtainable through the Economic Development Administration (E.D.A.). The 90% portion of the project cost anticipated to be financed by the E.D.A. was determined by use of E.D.A. formula in compliance with their regulations. No return on investment factor or mortgage cost is included in the pro forma cost estimates covering the remaining 10% of the project costs, because it is expected to come from local non-profit sources.

It is further assumed that monies in the form of E.D.A. grants will be available to cover the central building core construction and underlying land costs, thereby negating the requirement to include mortgage costs in the annual cash disbursements of that portion of the project.

The truck holding and circulation area is currently viewed in the project concept as a quasi-public street and/or parking area. Capital funds for this portion of the project are therefore anticipated to come from E.D.A. grants, in which case no mortgage costs would be incurred or included in annual disbursement requirements.

The cost of off-site improvements which would be paid by the City are not included in this analysis.

NOTE #2 - TAXES

Real estate taxes are computed at the 1969 rate of \$6.26/\$100 with a 40% valuation base. The current rate and valuation have been applied to the total project cost of the industrial building and central building core in anticipation of these areas bearing their full tax burden. It is assumed that preferential tax treatment will be available to the truck holding and circulating area on the basis of its quasi-public street concept. Thus, no tax costs have been included in its annual disbursements.

NOTE #3 - OPERATIONS AND MAINTENANCE

Expenses included in Prototype Three were analyzed on a basis consistent with that of Prototypes One and Two. Where similar construction, space utilization, and service were anticipated, a cost factor consistent with Prototypes One and Two was applied to Prototype Three. (See Appendix 3, Section A and Appendix 4, Section B.)

Certain operating and maintenance expenses are based on historical rates for similar type buildings. For areas in which historical rates did not apply because of the unusual concept of the building, these rates were carefully evaluated and refined to meet the estimated needs of the industrial complex.

The operating and maintenance cost for each major project segment is as follows:

Industrial Building	\$.413 per square foot
Central Building Core	\$.299 per square foot
Truck Holding	\$.196 per square foot

The building support systems and services (see Note 4 below) and general operating and maintenance are included in these costs, as they apply to each segment. Because the concept of Prototype Three differs significantly from that of the earlier studies, it is difficult to make a direct comparison of these costs with the earlier ones. (See Appendix 4, Section B.)

NOTE #4 - OTHER BUILDING SUPPORT SYSTEMS

Recognition of the estimated costs of the following systems and services has been included in this caption: elevators, plumbing, electrical, traffic handling and security personnel and janitors.

NOTE #5 - COST ALLOCATION

Non-tenant truckers are expected to occupy 25% of this area and, therefore, absorb 25% of its annual cost. This usage is expected because of the high truck volume presently near the

proposed site and in anticipation of marketing effort directed at the use of this facility by the trucking industry. The remaining unabsorbed cost (75%) is included in tenant rental rates on the basis of expected usage.

NOTE #6 - MANAGEMENT

Based on discussions with operators in the building management field, it is estimated that 4% - 5% of gross annual rental revenue would be a reasonable charge for building management services.

For presentation purposes this cost is treated as an add-on to annual disbursements to arrive at total annual disbursements, which is then the equivalent of gross annual rental revenue on a break-even basis.

NOTE #7 - BREAK-EVEN RENTAL PER SQUARE FOOT

Total cost per square foot is computed at 100% of rental capacity of 1,745,900 sq. ft. on a break-even basis. It is understood that this is an unrealistic occupancy assumption, however, adjustment of this cost for any level of occupancy is in direct proportion to the reduction of the occupancy level.

EXHIBIT E4
 PROTOTYPE BUILDING THREE
 CAR-PARKING STRUCTURE
 PRO FORMA PROJECT COST AND DISBURSEMENTS

PROJECT COSTS

Building cost	\$6,997,000
Architects, engineers - 5% of building cost	350,000
Interest, insurance, other construction costs - 4% of building cost	279,000
Management, administration - 1% of building cost	70,000
Contingency cost - 2% of building cost	140,000
	<hr/>
Land cost	Construction Cost \$7,836,000
	151,000
	<hr/>
Total Project Cost	<u>\$7,987,000</u>

<u>ANNUAL DISBURSEMENTS</u>	<u>25-Year General Obligation Bonds</u>	<u>30-Year General Obligation Bonds</u>	<u>30-Year Revenue Bonds</u>
Debt service - Note 1			
25-year, 6% General Obligation Bonds	\$625,000		
30-year, 6% General Obligation Bonds		\$580,000	
30-year, 6-3/4% Revenue Bonds			\$628,000
Direct labor - Note 2	46,000	46,000	46,000
Maintenance, utilities, and insurance - Note 3	79,000	79,000	79,000
Real estate taxes - Note 4	200,000	200,000	200,000
Management fee - Note 5	25,000	25,000	25,000
	<hr/>	<hr/>	<hr/>
TOTAL	<u>\$975,000</u>	<u>\$930,000</u>	<u>\$978,000</u>
Monthly charge per space - Note 6	\$ 37.00	\$ 35.00	\$ 37.00
Monthly charge per space with 1 1/2 debt service coverage - Note 7	49.00	46.00	49.00
Monthly charge per space for debt service/taxes - Note 8	31.00	30.00	32.00

See Notes to Pro Forma Project Costs and Cash Disbursements.

NOTE #1 - DEBT SERVICE

Debt service requirement is based on construction costs of \$7,835,800 plus land cost of \$151,000. All debt alternatives would be City of Cleveland obligations.

NOTE #2 - DIRECT LABOR

Cash disbursements of \$46,000 would support the estimated 11 men required 6-days per week, 24-hours per day.

NOTE #3 - MAINTENANCE, UTILITIES, AND INSURANCE

Maintenance disbursements are based on costs experienced by comparable facilities in the Cleveland vicinity. Utility disbursements are predicted on a factor of 1 watt per square foot for the period of illumination, which is the basis used by local utility companies for evaluating energy requirements. Insurance disbursements will provide for fire and extended coverage, plus garage-keepers legal liability.

NOTE #4 - TAXES

The County Auditor's office furnished the rate of \$6.26 per \$100 valuation with a 40% base. The total construction cost, plus the value of the land, produced a base of \$7,986,800, on which the factor of 40% is applied.

NOTE #5 - MANAGEMENT FEE

The management fee of \$25,000 was based on conversations with a local company engaged in parking lot management.

NOTE #6 - MONTHLY CHARGE PER SPACE

The monthly charge per space represents the total annual cash disbursements divided by 2,188 potential spaces converted to a monthly rate.

NOTE #7 - MONTHLY CHARGE PER SPACE - 1 1/2 DEBT SERVICE COVERAGE

This monthly charge per space with 1 1/2 debt service coverage is computed as in Note 6 above, except that total cash disbursements are increased by 50% of the annual debt service requirement. This produces a monthly space cost which contains a "cushion" equal to one-half of the annual debt service.

NOTE #8 - MONTHLY CHARGE PER SPACE - DEBT SERVICE AND TAXES

This computation is similar to Note 6 above, except that the total of debt service and taxes is used in lieu of total cost. The value of this figure is that it highlights the significance of the cost of the facility and land in relation to other operating costs.

APPENDIX 6

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